

PUBLIC NOTICE
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY (LDEQ)
SYNGENTA CROP PROTECTION, INC
ST. GABRIEL PLANT
SOLID WASTE BENEFICIAL USE PLAN

The LDEQ, Office of Environmental Services, has determined that a solid waste beneficial use plan for Syngenta Crop Protection, Inc., Post Office Box 11, St. Gabriel, Louisiana 70776 for the St. Gabriel Plant is acceptable for public review. **The facility is located at 3905 Highway 75 (River Road), St. Gabriel, Iberville Parish.**

Syngenta requested to continue its existing operation, the distribution of its calcium carbonate (RECAL II) material as a substitute agricultural liming agent, through a Beneficial Use Plan.

Written comments, written requests for a public hearing or written requests for notification of the final decision regarding this action may be submitted to Ms. Soumaya Ghosn at LDEQ, Public Participation Group, P.O. Box 4313, Baton Rouge, LA 70821-4313. **Written comments and/or written requests must be received by 12:30 p.m., Wednesday, September 10, 2008.** Written comments will be considered prior to a final decision.

If LDEQ finds a significant degree of public interest, a public hearing will be held. LDEQ will send notification of the final decision to the applicant and to each person who has submitted written comments or a written request for notification of the final decision.

The solid waste beneficial use plan is available for review at the LDEQ Public Records Center, Room 127, 602 North 5th Street, Baton Rouge, LA. Viewing hours are from 8:00 a.m. to 4:30 p.m., Monday through Friday (except holidays). **The available information can also be accessed electronically on the Electronic Document Management System (EDMS) on the DEQ public website at www.deq.louisiana.gov.**

Additional copies may be reviewed at Iberville Parish Library-East Iberville Branch, 5715 Monticello Street, St. Gabriel, LA and the City of St. Gabriel Mayor's Office, City Hall, 5035 Iberville Street, St. Gabriel, LA.

Inquiries or requests for additional information regarding this matter should be directed to Sonya Eastern, LDEQ, Waste Permits Division, P.O. Box 4313, Baton Rouge, LA 70821-4313, phone (225) 219-3551.

Persons wishing to be included on the LDEQ permit public notice mailing list or for other public participation related questions should contact the Public Participation Group in writing at LDEQ, P.O. Box 4313, Baton Rouge, LA 70821-4313, by email at deqmaillistrequest@la.gov or contact the LDEQ Customer Service Center at (225) 219-LDEQ (219-5337).

Public notices including electronic access to general information from the solid waste beneficial use plan can be viewed at the LDEQ permits public notice webpage at www.deq.louisiana.gov/apps/pubNotice/default.asp and general information related to the public participation in permitting activities can be viewed at www.deq.louisiana.gov/portal/tabid/2198/Default.aspx.

Alternatively, individuals may elect to receive the permit public notices via email by subscribing to the LDEQ permits public notice List Server at www.doa.louisiana.gov/oes/listservpage/ldeq_pn_listserv.htm

All correspondence should specify AI Number 2367, P-0311 and Activity Number PER20070025.

Publication date: August 7, 2008



State of Louisiana
DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

JUL 24 2008

Certified Mail 7003 2260 0005 9323 3785

Mr. Ralph Caddell, Site Manger
Syngenta Corp Protection, Inc.
Post Office Box 11
St. Gabriel, Louisiana 70776

RE: Technically Complete Determination
Syngenta - St. Gabriel Plant (Beneficial Use)
AI# 2367/ P-0311
Iberville Parish

Dear Mr. Caddell:

The Waste Permits Division is in receipt of the final copies of your permit application dated May 27, 2008. After reviewing these documents, we have determined that your application is technically complete and acceptable for public review.

The Environmental Assistance Division will distribute copies of your application for public review and place public notices in the appropriate newspapers in accordance with LAC 33:VII.513.F.3. Please contact Ms. Soumaya Ghosn at (225) 219-3276 for the date of publication and the dates for the comment period. At the conclusion of the comment period, we will consider all comments before rendering a permit decision regarding your application.

Please continue to reference your Agency Interest Number (2367) and Facility Identification Number (GD-047-0224) and Permit Activity Number (PER20070025) on all future correspondence regarding this matter. If you have any further questions, please contact Ms. Sonya Eastern of the Solid Waste Permits Division at (225) 219-3551.

Sincerely,

A handwritten signature in black ink, appearing to read "Bijan Sharafkhani".

Bijan Sharafkhani, P.E.
Administrator
Waste Permits Division

se

c: Janaye Tate – Waste Permit Division
Jonathan McFarland – Waste Permits Division



**Syngenta Crop Protection, Inc.
P.O. Box 11
St. Gabriel, LA 70776**

GD-047-0224/P-0311

Telephone-225-642-1257

Syngenta Crop Protection, Inc.

**Beneficial Use Permit Application
For RECAL II**

**Final
May, 2008**

RECEIVED

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LDEQ

syngenta

May 27, 2008

Syngenta Crop Protection, Inc
Post Office Box 11
St. Gabriel, LA 70776

Tel. 225 642 1100

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original to IOSW

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copy to SW/G3/Thomas
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Certified Mail: 7006 3450 0002 3410 3329

Ms. Sonya Eastern
Louisiana Department of Environmental Quality
Office of Environmental Services
Waste Permits Division
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313

RECEIVED

JUN 05 2008

WASTE PERMITS DIVISION
SOLID & HAZARDOUS WASTE SECTION

Regarding: Final Copies Beneficial Use Permit Application
Syngenta Crop Protection, Inc. - St. Gabriel, LA Plant (Syngenta)
AI # 2367 ✓

Dear Ms. Eastern:

Syngenta submitted the original permit application on November 29, 2007. Syngenta encloses four (4) final copies of its Beneficial Use Permit Application for the continued distribution of its Recyclable Calcium Carbonate (RECAL II) material as other solid waste pursuant to LAC 33.VII.1101.A. The administrative and technical reviews were completed for this permit application. Syngenta NOD responses have been incorporated into these final copies. Also enclosed are three additional copies of this cover letter and three copies each of the binder cover sheet and binder spine illustrated as final copies for the three final copies submitted with the NOD responses on April 25, 2008. Please replace the cover sheet, spine, and NOD responses with these pages resulting in seven (7) final copies submitted.

Syngenta is requesting that Louisiana Department of Environmental Quality (LDEQ) issue a beneficial use permit for the continued distribution of Syngenta's Recyclable Calcium Carbonate (RECAL II) material as a substitute agricultural liming agent.

Syngenta has successfully distributed its RECAL II material to local farmers as a substitute liming agent since 1990, under LDEQ authorizations and a beneficial use permit. Syngenta has successfully managed over 72,000 tons of RECAL II material at over 100 agricultural sites in Louisiana, saving over two million dollars (\$2,000,000.00) in the cost of soil conditioning agents for the local farming industry. During the past 20 years, Syngenta's distribution program has not resulted in any incidents threatening human health and the environment. Syngenta's distribution program is endorsed by the Louisiana Department of Agriculture, the Louisiana Cooperative Extension Service, and the Louisiana State University Agronomy Department.

Syngenta's most recent beneficial use permit, GD-047-0224 / P-0311, issued on November 25, 1996, expired on November 25, 2006. At that time Syngenta elected to not renew its permit, based on projections that its newly constructed Calcium Chloride plant would consume the full extent of its hydrochloric acid by-product. Prior to the

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neutralized within the facility's wastewater system, resulting in the production of Syngenta's RECAL II material. However, Syngenta's Calcium Chloride plant has not performed to its design capacity, and Syngenta has elected to continue the production and distribution of its RECAL II material. The alternative to obtaining a beneficial use permit would require Syngenta to manage and dispose of the calcium carbonate produced from its hydrochloric acid neutralization process as a solid waste.

Syngenta's beneficial use permit application, in accordance with LAC 33.VII.1101.A, is based on distribution to local farmers for the last 20 year's under LDAF and LDEQ authorizations and permits as a substitute soil liming agent.

Syngenta appreciates the LDEQ's timely review of its beneficial use permit application and LDEQ's support in the continuation of Syngenta's beneficial program for its RECAL II material.

If you have any questions concerning this application, please contact Mr. Richard Boudreau of my staff at (225) 642-1257.

Sincerely,



Richard B. Boudreau
Sr. Staff Env. Eng.

Attachment: Syngenta's Beneficial Use Permit Application

**Permit Application for Beneficial Use of RECAL II
Pursuant to 33 LAC VII.1105**

LIST OF APPENDICES

- Appendix A Syngenta's beneficial use permit (GD-047-0224 / P-0311), dated November 25, 1996.
- Appendix B Syngenta's August 23, 1996 beneficial use permit application.
- Appendix C 2004-2005 annual report submitted to the LDEQ on July 31, 2006, entitled Syngenta Annual Beneficial Use/ RECAL II Report For 2005-2006.
- Appendix D Syngenta's August 13, 2007 correspondence requesting temporary authorization.
- Appendix E LDEQ's September 24, 2007 authorization correspondence, and subsequent October 01, 2007 clarification correspondence.
- Appendix F Syngenta's RECAL II Operational Distribution Plan, Specifications, Typical Characteristics, Loading Rate Calculation Form, Distribution Agreement Form, and Method of Handling Form.

**Request for Beneficial Use of Other Solid Waste
Pursuant to 33 LAC VII.1105**

Title 33 Environmental Quality

Part VII. Solid Waste

Subpart 1. Solid Waste Regulations

Chapter 11. Solid Waste Beneficial Use and Soil Reuse

Section 1101. Applicability

- A. Solid waste beneficial use and soil reuse options apply to all solid waste generators. Solid waste beneficial use is available to solid waste streams that are typically disposed of in a solid waste disposal facility and that meet certain requirements as described in this Chapter.**

Syngenta Crop Protection, Inc. (Syngenta) is submitting this application for the beneficial use of other solid waste, pursuant to 33 LAC VII.1101.A. Syngenta is requesting the Louisiana Department of Environmental Quality's (LDEQ) reissuance of a beneficial use permit for the distribution of Syngenta's Recyclable Calcium Carbonate (RECAL II) material as a substitute liming agent for agricultural use.

Syngenta has successfully distributed its RECAL II material to local farmers as a substitute liming agent since 1987, under Louisiana Department of Agriculture and Forestry (LDAF) and LDEQ authorizations and a beneficial use permit that expired in November 2006. During the past 20 years, Syngenta's distribution program has not encountered any incidents threatening human health and the environment. Syngenta's distribution program has successfully managed over 72,000 tons of RECAL II material at over 100 agricultural sites in Louisiana, saving over two million dollars in the cost of soil conditioning agents for the local farming industry.

Syngenta's most recent beneficial use permit, GD-047-0224 / P-0311, issued on November 25, 1996, expired on November 25, 2006. A copy of Syngenta's beneficial use permit (GD-047-0224 / P-0311) is included as **Appendix A** of this submittal. In 2006, Syngenta elected to not renew its permit, based on projections that its newly constructed Calcium Chloride plant would consume the full extent of its hydrochloric acid by-product. Prior to the construction of the Calcium Chloride plant, the hydrochloric acid by-product was neutralized within the facility's wastewater system, resulting in the production of Syngenta's RECAL II material. However, Syngenta's Calcium Chloride plant has not performed to its design capacity, and Syngenta has elected to reinstate the production and distribution of a reduced volume of its RECAL II material. The alternative to the LDEQ's issuance of a beneficial use permit, would require Syngenta to manage and dispose of this reduced volume of its RECAL II material as a solid waste.

Therefore, Syngenta is preparing a beneficial use permit application for the continued distribution of its RECAL II material. The following beneficial use permit application is based on conditions nearly identical to those represented within Syngenta's previous beneficial use permit application, dated August 23, 1996. A copy of Syngenta's August 23, 1996 permit application is included as **Appendix B** of this submittal.

Title 33 Environmental Quality
Part VII. Solid Waste
Subpart 1. Solid Waste Regulations
Chapter 11. Solid Waste Beneficial Use and Soil Reuse

Section 1105. Beneficial Use of Other Solid Waste

A. *An application for beneficial use of solid waste streams shall provide the following information:*

1. *the name, address, and telephone number of the applicant;*

Syngenta Crop Protection, Inc.
Post Office Box 11
St. Gabriel, LA 70776
(225) 642-1100

Agency Interest # 2367

2. *the name, address, and telephone number of the applicant's primary contact for departmental correspondence and inquiries, and of the applicant's attorney or other representative, if applicable;*

Primary Contact

Richard B. Boudreau
Senior Staff Environmental Engineer
Syngenta Crop Protection, Inc.
Post Office Box 11
St. Gabriel, LA 70776
(225) 642-1257

Other Representative

W. Ralph Caddell
Site Manager
Syngenta Crop Protection, Inc.
Post Office Box 11
St. Gabriel, LA 70776
(225) 642-1200

3. *the address or site of origin of the solid waste proposed for beneficial use;*

Mailing Address

Syngenta Crop Protection, Inc.
Post Office Box 11
St. Gabriel, LA 70776

Physical Address

Syngenta Crop Protection, Inc.
3905 Highway 75 (River Road)
St. Gabriel, LA 70776

Geographic Location

Iberville Parish
Section 76, 77, 84, 85, 98, 100, 102 and 103; Township 9-S; Range 1-E

Coordinates

Latitude 30 Degrees; 15 Minutes; 11 Seconds

4. the chemical and physical characteristics of the material to be beneficially used;

RECAL II is the trade name for Syngenta's calcium carbonate material. Syngenta's RECAL II material is primarily calcium carbonate solids which originate from the neutralization operation in the effluent treatment area of Syngenta's St. Gabriel facility. As previously noted, Syngenta has successfully distributed its RECAL II material to local farmers as a substitute liming agent since 1990, under LDEQ authorizations and permits.

Syngenta has documented the chemical characteristics of its RECAL II material's in reports to the LDEQ since 1988. These reports include detailed annual reports submitted to the LDEQ as a condition of Syngenta's previous beneficial use permit, GD-047-0224 / P-0311, which expired on November 25, 2006. A copy of Syngenta's 1999 annual report, entitled Beneficial Use of RECAL II Annual Report, 2005-2006, is included as Appendix C of this submittal.

Syngenta's RECAL II material is active calcium carbonate which is why it serves as a supplemental liming agent, equivalent to conventional agricultural liming agent, calcium carbonate. Typical agricultural calcium carbonate is called agricultural limestone.

A component comparison to typical agricultural limestone is shown below:

<u>Component</u>	<u>RECAL II</u> As is Wt%	<u>AG Limestone</u> As is Wt %
Water	< 62%	12.4%
Calcium Carbonate	25 - 40%	83.6%
Calcium Sulfate	2 - 12%	0.13%
Calcium Phosphate	0 - 5%	1.0%
Calcium Hydroxide	0 - 3%	< 0.1%
Calcium Chloride	0 - 1.5%	0.04%
Iron Hydroxide	0 - 1%	0.2%

The basic difference between the RECAL II material and AG Limestone is the water content. The RECAL II material has elevated moisture content, resulting from entrained water from the dewatering operation. The physical characteristic of Syngenta's RECAL II material is a dry solid cake which crumbles with mild pressure to a fine, granular material. These physical characteristics provide ideal conditions with respect to lack of dusting during handling prior to spreading and the final mixing into the soil.

Users have determined that because of its chemical and physical characteristics, the RECAL II material lasts longer as a liming agent than conventional agricultural lime. Land treated with conventional agricultural lime requires re-liming approximately every three (3) years in this area. In contrast, land treated with the RECAL II material has been demonstrated to require re-liming every four (4) to five (5) years.

5. statements of the quantity, quality, consistency, and source of the solid waste;

As previously noted, Syngenta has successfully distributed its RECAL II material to local farmers as a substitute liming agent since 1987, under LDEQ authorizations and permits. During the past 20 years, Syngenta's distribution program has not encountered any incidents threatening human health and the environment. Syngenta's distribution program has successfully managed over 72,000 tons of RECAL II material at over 100 agricultural sites in Louisiana.

Historically, the maximum quantity of this material beneficially used per year has been an estimated 5,000 to 6,000 tons, with a average production quantity of about 3,000 tons per year. However, based on a significant volume of its hydrochloric acid by-product being consumed by its newly constructed Calcium Chloride plant, Syngenta anticipates that the future maximum production volume of RECAL II material will be 6000 to 8000 tons per year, with a average production quantity of about 5500 tons per year.

The quality of Syngenta's RECAL II material has been analyzed and reported to LDEQ in annual reports since 1988. Syngenta has a comprehensive quality control program demonstrated and reported for over 20 years for each load of RECAL II that includes shipping specifications and certificates of analyses.

The consistency of Syngenta's RECAL II material has been documented by extensive studies and consultation with the Louisiana State University and Louisiana Cooperative Extension Service agronomy experts. Definition, regarding the source of Syngenta's RECAL II material, is provided within the following section of this submittal.

6. a description of the process by which the solid waste is generated, and a demonstration that the generator has minimized the quantity and toxicity of the solid waste proposed for beneficial use to the extent reasonably practicable. The applicant shall provide a detailed narrative and schematic diagram of the production, manufacturing, and/or residue process by which the solid waste that will be beneficially used is generated;

Syngenta is continually improving its source reduction activities by improving the market and internal use for its 11 percent hydrochloric acid by-product, so that reduced quantities of commercial lime are needed for neutralization and less calcium carbonate is produced. As previously noted, Syngenta constructed its Calcium Chloride plant to consume the full extent of its hydrochloric acid by-product. This was the basis for Syngenta electing not to renew its previous beneficial use permit, GD-047-0224 / P-0311, which expired on November 25, 2006. However, Syngenta's Calcium Chloride plant has not performed to its design capacity, and Syngenta has elected to reinitiate the production and distribution of a reduced volume of its RECAL II material.

A complete description of Syngenta's process that manufactures the RECAL II material is provided in the second diagram of **Appendix D** of this submittal

As previously noted, Syngenta's RECAL II material consists of calcium carbonate solids which originate from the neutralization of aqueous waste streams in the effluent

treatment area of Syngenta's wastewater treatment system. Syngenta's elementary neutralization process is referred to as the Aqueous Waste Treatment (AWT) process. Syngenta's RECAL II material is comprised of seven (7) aqueous waste streams that are neutralized within Syngenta's AWT process.

The seven (7) waste streams which are neutralized in the AWT process and their classifications are described below:

<u>Description of Contributing Waste Stream</u>	<u>Waste Classification</u>
• Aqueous 4% sulfates <i>from process water clarifier blowdown</i>	Non-hazardous
• Aqueous 11% HCl by-product <i>from sources other than Calcium Chloride plant</i>	D002
• Spent 6% aqueous sodium hydroxide <i>from CC unit vent scrubber</i>	D002, D022
• Aqueous 10% CaCl dilute HCl <i>from CC unit dryer drains</i>	D002, D010
• Aqueous 4% sulfuric acid <i>from Demineralizer waste</i>	D002
• Aqueous 0.1% NH ₃ , 0.003% CN & 0.5% H ₂ SO ₄ <i>from HCN unit effluent</i>	D002
• Aqueous 0.1% H ₂ SO ₄ & 0.1% ammonium sulfate <i>from Sequestrene unit vent scrubber blowdown</i>	D002

Since the largest volume waste stream being neutralized is an 11 percent aqueous hydrochloric acid solution, slaked lime (aqueous calcium hydroxide) is added as a neutralizing solution. The slaked lime is produced from purchased anhydrous lime because it is significantly lower in cost than liquid caustic (sodium hydroxide). The NPDES permitted elementary neutralization process decharacterizes all six of the hazardous waste streams. There are no underlying hazardous constituents in the RECAL II that may exceed any applicable land disposal restrictions.

Following computer controlled neutralization and mixing, the combined neutralized stream is sent to the AWT process clarifier where it may be mixed with dilute calcium chloride solution from the Calcium Chloride plant. The potential routing of the dilute calcium chloride solution from the Calcium Chloride plant will only be required when the plant is operating and the plant's processing capacity of calcium chloride solution is exceeded.

Following conventional gravity clarification and settling of the neutralizer effluent, the clarifier solids are dewatered by filter pressing. The resulting filter pressed solids (i.e., RECAL II material) are washed extensively by a special rinsing and filter pressing

procedure, dewatered, and loaded directly into tractor trailers for quality control sampling and testing, prior to being transferred off-site for direct beneficial use.

On August 13, 2007, Syngenta requested the LDEQ to authorize the continued distribution of its RECAL II material as a substitute liming agent, pursuant to 33 LAC VII.117. A copy of Syngenta's August 13, 2007 request correspondence is included as Appendix D of this submittal.

On September 24, 2007, the LDEQ authorized the continued distribution of RECAL II, for a period of six (6) months. A copy of the LDEQ's September 24, 2007 authorization and subsequent October 01, 2007 clarification correspondence are included as Appendix E of this submittal. The LDEQ's authorization was provided to allow Syngenta to distribute RECAL II while awaiting permit application review and approval.

7. a detailed description of the processing activity, if applicable, that will be used to make the solid waste suitable for beneficial use;

As previously noted, Syngenta's RECAL II material is primarily calcium carbonate solids. The RECAL II material originates from the neutralization operation (i.e., AWT process) in the effluent treatment area of Syngenta's St. Gabriel facility. The neutralized AWT effluent is routed to a conventional clarifier. The solids are removed by conventional gravity clarification and settling, and the extensively washed solids are dewatered by special rinsing and filter pressing procedure.

The resulting filter pressed solids (i.e., RECAL II material) are then loaded directly into tractor trailers for quality control sampling and testing, prior to being transferred off-site for direct beneficial use. No additional processing is required to make Syngenta's RECAL II material suitable for beneficial use.

8. a demonstration that there is a known or reasonably probable market for the intended use of the beneficial use material, such as a contract to purchase or utilize the material, a description of how the material will be used, and a demonstration that the material complies with industry standards for a product, or other documentation that a market exists;

The calcium carbonate solids are in high demand by local farmers due to its demonstrated effectiveness as a soil ph modifier and savings to the farmers. Customer qualification is screened by the Louisiana Cooperative Extension Service.

As previously noted, Syngenta has successfully distributed its RECAL II material to local farmers as a substitute liming agent since 1987, under LDEQ and LDAF authorizations and permits. Syngenta has successfully demonstrated the viability and extent of the RECAL II material's existing market in reports to the LDEQ since 1988.

During the past 20 years, Syngenta's distribution program has not encountered any incidents threatening human health and the environment. Syngenta's distribution program has successfully managed over 72,000 tons of RECAL II material at over 100

agricultural sites in Louisiana saving local farmers over \$2 MM. There is a well documented and viable market for the beneficial use of Syngenta's RECAL II material.

9. *a description of the proposed methods of handling, storing, and utilizing the beneficial use material to ensure that it will not adversely affect the public health or safety, or the environment. This description shall consist of:*

- a) a statement of procedures to be employed for periodic testing for quality control purposes;*

Appendix F includes a method of handling procedure provided to all farmers for the RECAL II and the Syngenta RECAL II Distribution Agreement form agreed upon by the farmers prior to use. Syngenta provides a specially designed spreader to each farmer using the material.

Daily logs are kept by Syngenta for the operation of the unit where the RECAL II material is produced, and production unit inspections are performed by the environmental operations day supervisor. Daily logs are also recorded by the lab technicians performing the shipment testing of Syngenta's RECAL II material, and are kept by the environmental operations department. Quality assurance/quality control records are kept by Syngenta's analytical group.

Syngenta will maintain all records on-site for the life of the beneficial use permit.

Records shall be kept for at least three years after Syngenta's production of its RECAL II material is discontinued.

- b) a statement of intended storage procedures that will be used, including:*

- i. run-on/run-off control;*

Syngenta's RECAL II material is loaded directly into tractor trailers following production for quality control sampling and testing, prior to being transferred off-site for direct beneficial use. Syngenta's RECAL II material is not stored on the ground at Syngenta's St. Gabriel facility. Syngenta's RECAL II material is transferred to end use locations for its direct use as a substitute liming agent. Syngenta furnishes a calibrated distributor to spread the RECAL II material. The device is similar to a fertilizer spreader, but acquired by Syngenta especially for spreading the RECAL II material. Prior to receiving the RECAL II material, the beneficial end user (i.e., farmer) signs an acknowledgment form, acknowledging the review of the material handling instructions and a contractual agreement. Beneficial end users are instructed to cover the RECAL II if it is not immediately distributed in the areas designated in the contractual agreement, in the same manner they would for any other agricultural liming agent.

- ii. the maximum anticipated inventory;*

As previously noted, Syngenta's RECAL II is loaded directly into tractor trailers following production for quality control sampling and testing, prior to being transferred off-site for

direct beneficial use. Syngenta's RECAL II material is not inventoried at Syngenta's St. Gabriel facility. The maximum number of pre-shipment tractor trailers of RECAL II held on-site at the Syngenta plant prior to delivery to farmers is four.

iii. measures to ensure that no contamination of underlying soil or groundwater occurs;

As previously noted, Syngenta's RECAL II material is loaded directly into tractor trailers following production for quality control sampling and testing, prior to being transferred off-site for direct beneficial use. Syngenta's RECAL II material is not inventoried or stored on the ground at Syngenta's St. Gabriel facility, and there is no potential for contamination of underlying soil or groundwater.

Syngenta's RECAL II material transferred to end use locations is to be directly used as a substitute liming agent. Prior to receiving the RECAL II material, the beneficial end user (i.e., farmer) acknowledges review of the material handling instructions and adherence with application requirements. Beneficial end users are instructed to manage the RECAL II in a manner consistent with the use of any other agricultural liming agent.

Since 1989, Syngenta's RECAL II material has been distributed to over 100 farm sites under the LDEQ's and Louisiana Department of Agriculture's authorization and the Louisiana Cooperative Extension Service coordination. Reports submitted to the LDEQ since 1988 have documented that application of the RECAL II material does not adversely impact underlying soil or groundwater. All of the farm sites to which RECAL II has been distributed since 1989 showed metal loading rates thousands of times lower than the LDEQ allowed lifetime limits as provided in Section 1107.F.9. of the old permit application. LDEQ does not have metal loading rate limits on Beneficial Use material.

In Appendix B of this submittal, as part of the 1996 permit application, an Appendix XVII is included that consists of reports as Attachments 1, 2, and 3 that cover groundwater table information and penetration studies that demonstrate RECAL II to be safe with respect to its lack of mobility and lack of effect on groundwater.

iv. measures for dispersion control due to wind;

This is not applicable to the production or distribution of Syngenta's RECAL II material. As previously noted, the RECAL II material has elevated entrained moisture content, resulting from entrained water from the dewatering operation. This physical property provides inherent benefit with respect to its lack of dusting during handling prior to spreading and during the final mixing into the soil.

and

c) recordkeeping procedures.

Daily logs are kept by Syngenta's environmental operations for the unit where its RECAL II material is produced. Daily logs are kept by the lab technicians performing the shipment and batch testing of the RECAL II material, and daily shipping logs are kept by the environmental operations department. Prior to being transferred off-site for direct

beneficial use, Syngenta's RECAL II material is evaluated for release criteria specifications. Following confirmation that the release criteria specifications have been met the RECAL II material is delivered to the end user (i.e., farmer), as qualified by the Louisiana Cooperative Extension Service.

In the event that a load fails any of the release criteria specifications, or the operations team becomes aware of any upset in operations, the production team leader notifies the quality control team leader, who in turn initiates a more comprehensive testing protocol, as specified by the analytical applications quality control group. Loads that fail to meet release criteria specifications will either be sent for disposal at a permitted site or representatively resampled and retested to confirm failure.

The following is a list of records that are kept at Syngenta's St. Gabriel facility:

- site farmer and locations where the RECAL II material is distributed;
- distribution agreement and acknowledgment of handling instruction;
- LSU Agronomy Lab report from Louisiana Cooperative Extension Service showing before application soils pH data, soil type, end users name and location, crops to be grown, and recommended lime application rate;
- quality control test data obtained on each load and certificate of analysis;
- total weight of the load delivered and date shipped; and
- actual and recommended loading rate of the RECAL II material at each site.

Site inspections are performed at least once for each site receiving the RECAL II material by Syngenta's environmental operations supervisor, after the beneficial end user (i.e., farmer) signs the handling instructions agreement. The application site inspections are not specifically recorded other than the signatures and dates on the handling instructions.

Syngenta will maintain all records on-site for the life of the beneficial use permit. Records shall be kept for at least three years after Syngenta's production of its RECAL II material is discontinued.

10. An acknowledgement that at least 75 percent of the material placed in storage during a year will be sent to market or to other secure storage within the following year, unless the operator demonstrates that a particular order requires greater than one year of product storage prior to shipment;

As previously noted, Syngenta's RECAL II is loaded directly into tractor trailers following production for quality control sampling and testing, prior to being transferred off-site for direct beneficial use. Syngenta's RECAL II material is not inventoried at Syngenta's St. Gabriel facility. Syngenta's distribution program has successfully managed over 72,000 tons of RECAL II material at over 100 agricultural sites in Louisiana. There is a well documented and viable market for the beneficial use of Syngenta's RECAL II material.

However, in the event that storage is required, Syngenta acknowledges that at least 75 percent of its RECAL II material placed in storage during a given year will be sent to market or to other secure storage within the following year.

11. a demonstration that the end use of the material is protective of public health, safety, and the environment;

The Syngenta legacy company Ciba-Geigy Corp., provided a comprehensive report on the RECAL II safe and effective use to LDEQ dated November 30, 1990. This report provided several health, safety, and effectiveness reports to LDEQ that were the basis of demonstrating protection of the public health even prior to the 1996 LDEQ permitting. This report and the continued distribution for the last 20 years without any adverse incidents are substantial demonstration that the end use is protective of the human health and the environment. A copy of the report is available at the Syngenta site for review on demand.

As previously noted, Syngenta has successfully distributed its RECAL II material to local farmers as a substitute liming agent since 1987, under LDEQ authorizations and permits. During the past 20 years, Syngenta's distribution program has not encountered any incidents threatening human health or the environment.

Syngenta's distribution program has successfully managed over 72,000 tons of RECAL II material at over 100 farm sites in Louisiana. Reports submitted to the LDEQ since 1988 have documented that application of the RECAL II material as a substitute liming agent does not adversely impact underlying soil or groundwater.

12. a discussion of the end users of the material and the locations of the end-use; and

The end users of Syngenta's RECAL II material are local agricultural farms. The RECAL II material has been demonstrated over the last 20 years of agricultural distribution to be a safe and effective liming agent at over 100 farm sites in Louisiana. Syngenta's distribution program utilizes multiple end use locations qualified by the Louisiana Cooperative Extension Service. The Louisiana Cooperative Extension Service qualifies the end use location, establishes the application rate by testing the soil, and recommends the application rate for anhydrous agricultural lime. The farmer provides location information, acreage, and mapping information to Syngenta.

Syngenta's representative then determines the number of loads based on the acreage and application rate. Syngenta provides initial quality control analyses, weighs each load prior to delivery, and maintains record of the exact quantities shipped to each site. This assures accurate determination of the application rate and maintains quality control and shipping records.

Application site inspections are performed at least once for each site by Syngenta's environmental operations supervisor at the time the end user signs the handling instructions and distribution agreement. A physical inspection is performed. The application site inspections are documented with the signatures of the Syngenta

representative and the farmer on the handling instructions and the date of the signatures. If any issues arise additional inspections may be scheduled.

- 13. any other information the secretary may require or the applicant believes will demonstrate that the proposed beneficial use of the material will conserve, improve, and/or protect human health, natural resources, and the environment.**

Syngenta has successfully distributed its RECAL II material to local farmers as a substitute liming agent since 1987, under LDEQ authorizations and permits. During the past 20 years, Syngenta's distribution program has not encountered any incidents threatening human health and the environment. Syngenta's distribution program has successfully managed over 72,000 tons of RECAL II material at over 100 agricultural sites in Louisiana.

Syngenta's distribution program for its RECAL II material has been developed under a cooperative effort involving the LDAF and the Louisiana Cooperative Extension Service to provide benefit to the local farming industry. Syngenta incurs all costs associated with production and transportation of its RECAL II material, which has resulting in a savings to the local farming industry over two million dollars in liming costs over the term of its program. In addition to accomplishing savings to the farmers, the RECAL II program accomplishes waste minimization by utilizing material beneficial to crops, instead of land disposal of approximately 5000 yd³ per year of a usable material.

- B. The application shall be signed by the applicant and the individual or individuals responsible for actually preparing the information and supporting data submitted with the application, each of whom shall certify in writing as follows:**

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate, and complete to the best of my knowledge and belief."

"I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with La. R.S. 30:2025(F) and in accordance with any other applicable statute."

I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate, and complete to the best of my knowledge and belief.

I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with La. R.S. 30:2025(F) and in accordance with any other applicable statute.



W. Ralph Caddell
Site Manager
April 25, 2008



Richard B. Boudreau
Sr. Staff Env. Eng.
April 25, 2008

- C. *Upon approval the material shall be handled, processed, stored, or otherwise managed in accordance with the proposed plan outlined in the application.*

Syngenta will continue to obtain written agreement from the farmers using the Method of Handling agreement provided in **Appendix F**.

The operational plan for distribution of Syngenta's RECAL II material as an agricultural liming agent continues as under the original permit with the assistance of Louisiana Cooperative Extension Service providing qualification of each site for liming. A complete description of Syngenta's operational plan for distribution of its RECAL II material is provided in **Appendix F** of this submittal.

As noted above, the Louisiana Cooperative Extension Service assists Syngenta in distribution program for its RECAL II material. The soil is pretested at the LSU Agronomy and Soils Testing laboratory for pH and CEC. The application rate for typical agricultural liming agent (anhydrous calcium oxide) is established by the Louisiana Cooperative Extension Service after pH testing the soil at the end use location. Based on green house studies and field studies Syngenta has determined an equivalence factor for RECAL II compared to anhydrous calcium oxide lime. Syngenta's representative prepares a RECAL II distribution information sheet and a shipping tally and sends the shipping tally, distribution information sheet and any other pertinent information regarding the end use location to the Syngenta's environmental operations department.

Syngenta's environmental operations department prepares and provides shipping papers to the environmental operations technicians who produce the RECAL II material. The department also maintains shipping records and weigh tickets and shipping test results on the RECAL material distributed.

Syngenta's environmental operations technicians sample each load and assign a lot number to the load. Each lot is tested for Calcium Carbonate, Calcium Chloride and Solids content. These three parameters are the release criteria specifications, which

have been derived from over 10,000 analyses performed on over 1200 lots of RECAL II material since 1988.

If the lot passes these specifications the analytical applications group prepares a certificate of analysis, and forwards the certification of analysis to the environmental operations technicians who schedule the shipment to the end use location. The analytical applications group also maintains the records on quantity and end use location for each load. After completion of a shipment checklist the shipping papers are provided to the driver and the driver delivers the load to the end use location.

In the event that any lot fails to meet these specifications, the environmental operations department is notified. If the specifications are not met the environmental regulatory affairs group authorizes the shipment of the load to an approved, permitted disposal site.

Syngenta will maintain all records on-site for the life of the beneficial use permit. Records shall be kept for at least three years after Syngenta's production of its RECAL II material is discontinued.

- D. *Respondents in actions to enforce regulations who raise a claim that the transportation, storage, handling, processing, and/or use of certain material has been approved by the administrative authority pursuant to this Section must demonstrate that there is a known or reasonably probable market or disposition for the material and that the terms of this Section and any department approval are met. In doing so, respondents must provide appropriate documentation (such as contracts showing that a second person uses the material as an ingredient in a production process) to demonstrate that the material is not discarded, but is, instead, subject to beneficial use. In addition, owners or operators of facilities claiming that they actually are preparing materials for beneficial use pursuant to this Section must be able to show that they have the necessary equipment to do so. The administrative authority may revoke or rescind any prior approval provided by the department pursuant to this Section upon failure of a respondent to provide adequate proof in accordance with this Subsection.***

Syngenta has successfully distributed its RECAL II material to local farmers as a substitute liming agent since 1987, under LDEQ and LDAF authorizations and permits. During the past 20 years, Syngenta's distribution program has not encountered any incidents threatening human health and the environment. Syngenta's distribution program has successfully managed over 72,000 tons of RECAL II material at over 100 agricultural sites in Louisiana.

The experience obtained by Syngenta during the past sixteen (16) years of successful distribution of its RECAL II material, provide assurance that Syngenta will meet all conditions and requirements of its beneficial use permit.

Title 33 Environmental Quality

Part VII. Solid Waste

Subpart 1. Solid Waste Regulations

Chapter 15. Solid Waste Fees

Section 1501. Standard Permit Application Review Fee

- B. Applicants for Type III standard permits or beneficial-use permits shall pay a permit application review fee of \$600 for each facility. The fee shall accompany each permit application submitted.**

Syngenta has enclosed a check in the amount of \$660.00, for the beneficial-use permit application review fee, as defined under 33 LAC VII.1501.B.

Title 33 Environmental Quality

Part VII. Solid Waste

Subpart 1. Solid Waste Regulations

Chapter 5. Solid Waste Management Systems

Section 523. Part III: Additional Supplementary Information

A. The following supplementary information is required for all solid waste processing and disposal facilities. All responses and exhibits shall be identified in the following sequence to facilitate the evaluation:

- 1. a discussion demonstrating that the potential and real adverse environmental effects of the facility have been avoided to the maximum extent possible;**

This requirement is not applicable to Syngenta's RECAL II material. The requirement is included to provide supplementary information for solid waste processing and disposal facilities. Syngenta's RECAL II material is directly utilized by the end user (i.e., farmer), and the application is not considered solid waste processing or disposal. The use of the RECAL II material as a substitute liming agent in the place of agricultural limestone is a well recognized, safe and effective practice which has been registered with the Louisiana Department of Agriculture and Forestry since October 11, 1988.

Reports previously submitted to LDEQ prior to previous permitting or authorization applications on analytical, agronomic, green-house, and field studies, including crop metals uptake and crop yields have shown no adverse effects and significant benefit. Metals dosage rates have been thoroughly monitored at over one hundred (100) area farm sites. Data accumulated on metal loading rates on the properties in the surrounding parishes shows metal loading rates thousands of times lower than lifetime limits set by LDEQ for sewage sludge. All this data has been periodically submitted to the LDEQ through out the life of the previous permit.

Additional data has been submitted to the LDEQ over the past ten (10) years as a condition of Syngenta's previous beneficial use permit, GD-047-0224 / P-0311, which expired on November 25, 2006. All data submitted to date, has documented that no adverse environmental impact has resulted from Syngenta's RECAL II material.

- 2. a cost-benefit analysis demonstrating that the social and economic benefits of the facility outweigh the environmental-impact costs;**

As demonstrated in Section 523. Part III, there has not been any adverse environmental impact incurred through the beneficial use of Syngenta's RECAL II material. In contrast, the environmental cost benefits of using Syngenta's RECAL II material as a substitute liming agent are as follows:

- Since 1988, 72,000 tons of high quality, usable calcium carbonate was not sent to landfill resulting in more effective use of local landfills for solid wastes.

- Since 1988, over 100 local farmers have saved more than two million dollars in liming agent costs.
 - The Louisiana Cooperative Extension Service has documented the benefits of Syngenta's RECAL II material, and demonstrated that crop production is generally increased from three (3) to thirty (30) percent, through the use of the RECAL II material.
 - Disposal costs of about seven million dollars have been redirected to benefit the community and the local farming industry.
- 3. *a discussion and description of possible alternative projects that would offer more protection to the environment without unduly curtailing non environmental benefits;***

There are no feasible alternative projects which would offer greater protection to the environment, while simultaneously providing benefit to the local farming industry. There are no feasible economic alternatives to the production of the RECAL II material. Syngenta is continually improving its source reduction activities by improving the market and internal use for its 10% hydrochloric acid by-product, so that reduced quantities of commercial lime are needed for neutralization and less calcium carbonate is produced.

As previously noted, Syngenta constructed a Calcium Chloride plant on-site at its St. Gabriel facility to consume the full extent of its hydrochloric acid by-product. This was the basis for Syngenta electing to not renew its previous beneficial use permit, GD-047-0224 / P-0311, which expired on November 25, 2006. However, Syngenta's Calcium Chloride plant has not performed to its design capacity, and Syngenta has elected to reinitiate the production and distribution of a reduced volume of its RECAL II material.

- 4. *a discussion of possible alternative sites that would offer more protection to the environment without unduly curtailing non environmental benefits; and***

This is not applicable to Syngenta's RECAL II material, because the permit application is not for a facility. Alternative sites are not a feasible option for the production of the RECAL II material as a substitute liming agent.

- 5. *a discussion and description of the mitigating measures which would offer more protection to the environment than the facility, as proposed, without unduly curtailing non environmental benefits.***

This application is not for a beneficial use facility so there are no mitigating measures which would offer more protection to the environment than the facility (applied for), as proposed, without unduly curtailing non-environmental benefits. There are no mitigating measures which would offer more protection to the environment in the use of the RECAL II material as a substitute liming agent, because there is no adverse environmental impact. After sixteen (16) years of distribution under LDEQ authorization and a beneficial use permit, no adverse environmental impacts have been identified.

UPDATED DELEGATION OF AUTHORITY
SYNGENTA CROP PROTECTION, INC.-ST GABRIEL PLANT

All Waste Permit Applications and Modifications will continue to be signed and certified by the Syngenta Crop Protection, St. Gabriel Site Manager unless he is not available. If the Site Manager is unavailable Waste Permits Applications and Modifications can be signed by the Site Environmental Lead.

Reports and documents required or requested by the Administrative Authority can be signed by the individuals occupying either of the following positions:

- Site Environmental Lead
- Environmental Regulatory Affairs Senior Staff Env. Engineer/ Staff Engineer

Authorization for reports by:

W. Ralph Caddell

W. Ralph Caddell
St. Gabriel Site Manager

Date: April 25, 2008

Appendix A

**Syngenta's Beneficial Use Permit (GD-047-0224 / P-0311)
Dated November 25, 1996**



State of Louisiana
Department of Environmental Quality



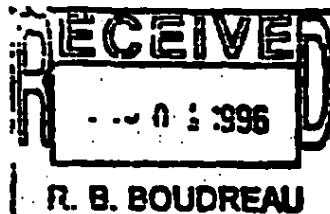
November 25, 1996

W. L. "MIKE" LONER, JR.
- AIRMAIL

J. DALE GIVENS
- SECRETARY

CERTIFIED MAIL P 531 376 601
RETURN RECEIPT REQUESTED

Mr. Richard B. Boudreau
Senior Staff Environmental Engineer
Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, Louisiana 70776



RE: Issuance of Standard Permit
Ciba-Geigy Corporation
Beneficial-Use Permit
GD-047-0224/P-0311
Iberville Parish

Dear Mr. Boudreau:

Under to authority of the Louisiana Environmental Quality Act (LA.R.S. 30:2001 et seq.), I hereby issue the enclosed Standard Permit for the above-referenced facility.

This permit action shall become final and not subject to further administrative review unless, no later than thirty (30) days after receipt of this document, you file a written request for a hearing. This request should be directed to the following:

Attention: Barry Brooks
Louisiana Department of Environmental Quality
Office of Secretary
Post Office Box 82263
Baton Rouge, Louisiana 70884-2263

If you have any questions regarding this matter please contact Ms. Yolunda Righteous of the Solid Waste Division at (504) 765-0249.

Sincerely,

J. Dale Givens
Secretary

JDG:YR:jd

OFFICE OF SOLID AND HAZARDOUS WASTE SOLID WASTE DIVISION

PO BOX 82278

BATON ROUGE, LOUISIANA 70884-2178

TELEPHONE (504) 765-0249

FAX (504) 765-0295

AN EQUAL OPPORTUNITY EMPLOYER



Louisiana
Keep it Beautiful



State of Louisiana

Department of Environmental Quality



W. J. "MIKE" LANTIER JR.
GOVERNOR

L. DALL GUYTON
SECRETARY

STANDARD PERMIT

Site Number: GD-047-0224

Standard Permit Number P-0311

Pursuant to the Louisiana Environmental Quality Act (La. R.S. 30:2001 et seq.; "the Act") as amended, and the Louisiana Administrative Code, Title 33, Part VII, a Standard Permit is issued to:

Ciba-Geigy Corporation

(hereinafter referred to as the "Permittee")

Limitations and conditions applicable to this Standard Permit:

1. This Standard Permit applies only to the site(s) referred to in the permit application (hereinafter referred to as the "Facilities").
2. The land application at the Facilities are subject to all applicable rules and regulations and orders of the Solid Waste Division and all conditions of this Standard Permit.
3. The land application at the Facilities shall be in accordance with the representations made in the permit application accepted by the Solid Waste Division and all conditions of this Standard Permit.
4. This Standard Permit is issued for ten years from the date of issuance and expires November 23, 2006.
5. No modifications to a site, facility, process or disposal method or operation may be effected without prior approval of the Secretary in accordance with LAC 33:VII.517.A.
6. Failure to land apply at the facilities in accordance with the Act, the Louisiana Administrative Code, Title 33, Part VII, or this Standard Permit shall constitute a violation which will subject the Permittee to the possible imposition of civil penalties in accordance with LAC 33:VII. Chapter 9 and Section 2025 of the Act; and to the possible suspension or revocation of this Standard Permit in accordance with LAC 33:VII.511.H.

OFFICE OF SOLID AND HAZARDOUS WASTE SOLID WASTE DIVISION P.O. BOX 82178 BATON ROUGE, LOUISIANA 70884-2178

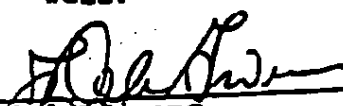
TELEPHONE (504) 765-0245 FAX (504) 765-0299

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7. Each site referenced in the permit application must comply with LA R.S. 30:2040 of the Environmental Quality Act.
8. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within thirty (30) days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing unless the Secretary or the Assistant Secretary elects to suspend other provisions as well.



J. Dale Givens
Secretary
Department of Environmental Quality

11-25-96
Date of Issuance

Appendix B

Syngenta's August 23, 1996 Beneficial Use Permit Application

CIBA-GEIGY CORPORATION
ST. GABRIEL PLANT

BENEFICIAL USE
PERMIT APPLICATION
FOR
RECAL II

SUBMITTED
AUGUST 23, 1996
TO
LOUISIANA DEPARTMENT
OF ENVIRONMENTAL QUALITY



Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, LA 70778

Telephone 504 642 1100

RECEIVED

AUG 23 1996

Dept. of Environmental Quality
Solid Waste Division

August 23, 1996

Mr. William Mollere, Administrator
State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
P. O. Box 82178
Baton Rouge, Louisiana 70884-2178

RE: REFORMATTED BENEFICIAL USE PERMIT APPLICATION FOR RECAL II

Dear Mr. Mollere:

Enclosed are four (4) copies of a reformatted Beneficial Use Permit Application for the Ciba-Geigy, St. Gabriel Plant's RECAL II. The original application was submitted to you on February 2, 1996. Ciba received a letter of non-conformity for the permit application from LDEQ on April 8, 1996. Ciba submitted responses to the non-conformity notice on May 20, 1996. Copies of the letter of non-conformity and Ciba's responses are provided in Appendix XVIII of this submittal. The non-conformities and the responses are also addressed in the individually cited sections of this submittal.

RECAL II has been authorized for distribution to local farmers by LDEQ-SWD and the Louisiana Department of Agriculture as a liming agent since 1988. The use of this material as a liming agent, with less regulatory restrictions, is endorsed by the Louisiana Department of Agriculture, the Louisiana Cooperative Extension Service and members of the Louisiana State University Agronomy Department.

A check of \$500.00 to the LDEQ-SWD for the permit application review fee was included with the original application submitted on February 2, 1996.

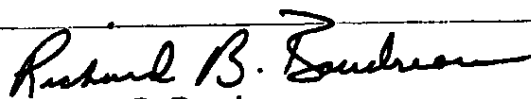
Ciba requests a ten year Beneficial Use Permit for the RECAL II material with this application, rather than a Beneficial Use Facility Permit as the regulations in LAC 33:VII.1101 are designed. Ciba representatives have met and have been in communication with LDEQ-SWD staff members on several occasions to ensure that the

Mr. William Mollere
August 23, 1996
Page 2.

applicable portions of the regulatory permit format are properly followed in this submittal and the application is technically complete.

Ciba and the area farmers appreciate your continued assistance in providing a beneficial program for this material. If you have any questions concerning this application, please contact me at 504-642-1257.

Sincerely,



Richard B. Boudreau
Senior Staff Environmental Engineer

RBB:kk

TABLE OF CONTENTS

PART I SOLID WASTE STANDARD PERMIT APPLICATION FOR BENEFICIAL-USE FACILITIES

Appendix I LDEQ Authorization of March 16, 1991 to Distribute RECAL II and LDEQ Approval of Extension through December, 1996.

Appendix II Letter of Compliance from the Louisiana Resource Recovery Development Authority and Ciba Letter of Request

Appendix III Certificate of Authority and Public Notices

Appendix IV Louisiana Department of Agriculture and Forestry Approval of Registration of RECAL II as Liming Agent

Appendix V Letter of No Objection from LDEQ-Water Resources

Appendix VI Letters of Support from Louisiana Cooperative Extension Service

Appendix VII Louisiana State University Department of Agronomy Reports on RECAL II Studies

PART II BENEFICIAL-USE PERMIT APPLICATION FOR RECAL II - SUPPLEMENTARY INFORMATION

PART III "IT DECISION" QUESTIONS - SUPPLEMENTARY QUESTIONS

Appendix VIII Method of Handling Acknowledgment Form, Distribution Agreement Form, RECAL II Material Safety Data Sheet, and Louisiana Cooperative Extension Service Soil Analysis Report

Appendix IX Certificate of Analysis Form for RECAL II

Appendix X RECAL II Operational Plan, Typical Chemical Characteristics, and Specifications and Test Frequencies

Appendix XI Process Flow Diagram, Inlet Feed Characterizations, HW Characteristic Testing Lab Reports

- Appendix XII** Ciba-Off-site Emergency Response Procedure
- Appendix XIII** Typical Metals Loading Rates for Five Sites
- Appendix XIV** Example RECAL II Site Distribution Information Sheet,
Example Shipping Request, Example RECAL II Loading
Rate Calculation Sheet
- Appendix XV** Letter Report to LDEQ of PCB Analysis and CG/MS
Analysis
- Appendix XVI** Background Metals Data on 55 Agricultural Sites
-
- Appendix XVII** Request for Exemption from LAC 33:VII.1109.E.
- Appendix XVIII** LDEQ Letter of Lack-of-Conformity of Original Permit
Application and Ciba Response Letter

PART I

**BENEFICIAL-USE
PERMIT APPLICATION**

FOR

RECAL II

PART I

CIBA-GEIGY CORPORATION

ST. GABRIEL PLANT

ST. GABRIEL, LOUISIANA

SUBMISSION

AUGUST 23, 1996

1105. Part I Application Form for Beneficial-use Facilities

The applicant shall complete a beneficial-use application Part I Form. The following notes refer to the items on the form requiring that information:

- 1105.A.** name of applicant (prospective permit holder) applying for a beneficial-use permit (also name of property owner if different from permit holder).

Ciba-Geigy Corporation

- 1105.B.** facility name;

Ciba Corporation, St. Gabriel, Louisiana Plant

- 1105.C.** description of the location(s) of the facility (identify by street and number or by intersection of roads, or by mileage and direction from an intersection);

3905 Highway 75 (River Road), St. Gabriel, Louisiana 70776

- 1105.D.** geographic location(s) (section, township, range, and parish where the facility is located), and the coordinates (as defined by the longitude and latitude to the second) of the centerpoint of the facility;

Section 76,77,84,85,98,99,100,102,103; Township 9-S; Range 1-E;

Parish Iberville

**Coordinates: Latitude 30; Degrees 15; Minutes 11; Seconds
Longitude 91; Degrees 06; Minutes 33; Seconds**

- 1105.E.** mailing address of the applicant and the name(s) of the property owner if different from applicant;

Ciba Corporation-St. Gabriel Plant, P. O. Box 11, St. Gabriel, LA 70776

- 1105.F.** contact and phone number for the applicant and for the property owner (position or title of the contact person is acceptable);

**Richard B. Boudreau (504) 642-1257 (contact person)
(504) 642-1100 (main company number)**

- 1105.G.** type and purpose of operation (check each applicable block);

Beneficial Use: X

Liquid Applications

Solid Applications X

Describe: Solid granular material

- 1105.H.** a list of all environmental permits that relate directly to the facility represented in this application;

**LDEQ Authorization to Distribute RECAL II of March 15, 1991 and December 28, 1996 Extension (See Copies in Appendix I)
NPDES Water Discharge Permit - LA0005487**

Louisiana Consolidated Air Permit - 128000007-13
Louisiana RCRA Hazardous Waste Permit Part A & B-LAD053783445
Louisiana Solid Waste Permit - GD-0224-P0017
Louisiana Air Permit No. 2132 - Multipurpose Incinerator
Louisiana Air Permit No. 343C (M-4) - Liquid Incinerator

- 1105.I. a letter from the Louisiana Resource Recovery and Development Authority (LRRDA) stating that the operation conforms to the applicable statewide plan; (Note: In accordance with R.S. 30:2307.B, this regulation does not apply to solid waste disposal activity occurring entirely within the boundaries of a plant, industry or business which generates such solid waste.);

See Ciba letter of request and the response from the Louisiana Resource Recovery Development Authority in Appendix II.

Non-Conformity

- 1105.I. *Provide letter (LRRDA) referenced in this section.*

Non-Conformity Response

The original permit application submitted February 2, 1996 did not have the Louisiana Resource Recovery and Development Authority letter. The Louisiana Resource Recovery and Development Authority Letter of Conformity with the Statewide Plan was submitted to LDEQ through certified mail on March 27, 1996 and received by Mr. Tom Payne of LDEQ on March 28, 1996. A copy is provided in Appendix II of the August, 1996 resubmittal of the application.

- 1105.J. zoning of the facility (If the facility is zoned, note the classification and zoning authority, and include a zoning affidavit or other documentation stating that the proposed use does not violate existing land use requirements.);

Zoned: Yes; Zone Classification: Rural, Iberville Parish
The zoning of the Ciba facility does not apply to this permit application, because the permit application is for a Beneficial Use Permit for the RECAL to be applied as an agricultural liming agent to farmlands. This activity for this material is supported by the Louisiana Cooperative Extension Service, the Louisiana Department of Agriculture, and the LSU Agronomy Department. Ciba also has on file a letter of no objection from LDEQ-Office of Water Resources and several letters of authorization to distribute RECAL II from LDEQ-SWD since 1988 through December, 1996.

- 1105.K. types and maximum quantities (wet-weight tons per week) of waste to be applied at the facility;

Type: solid calcium carbonate.

Quantities to be distributed to local farmers: 0-100 tons per week - could exceed 100 tons per week if material accumulates due to a temporary inability to ship.

Non-Conformity

1105 K.* *Is the waste unused commercial calcium carbonate, or is it spent calcium carbonate which is in contact with or contaminated with solid waste in the wastewater treatment system? Contaminated spent calcium carbonate is considered solid waste (see definition of solid waste and industrial solid waste).*

Non-Conformity Response:

In the original Part I application submitted February 2, 1996, Ciba explained that the material was "Solid Calcium Carbonate" and that Ciba does not agree that this material should be classified as a waste under the definition of solid waste.

Ciba conceded that under the present definition of solid waste that LDEQ has regulating authority over RECAL II and that a Beneficial-use Authorization is applicable.

In response to the non-conformity question above, the calcium carbonate is not commercial calcium carbonate, nor is it spent calcium carbonate which is in contact with or contaminated with solid waste in the wastewater treatment system. It is not contaminated spent calcium carbonate. The calcium carbonate is a precipitated solid from neutralization of several waste streams. These waste streams become neutralized and lose their hazardous characteristics in a Clean Water Act permitted wastewater treatment neutralization process.

Ciba advocates exempting materials like RECAL II in the definition of solid waste, but Ciba will address such an exemption at a later date when the definition of solid waste is modified.

Ciba concedes that under the present definition of solid waste that LDEQ has regulating authority over RECAL II and that a beneficial-use authorization is applicable, because any sludge from a wastewater treatment unit is considered a waste.

1105.L. proof of publication of the notice regarding submittal of the permit application as required in LAC33:VII.513.A;

See Appendix III for proof of public notice in the official journals of the parish and state.

1105.M. the signature, typed name, and the title of the individual(s) authorized to sign the application by the applicant and the property owner; (Proof of legal authority of the signatory to sign for the applicant must be provided.);

*Referred to as 1105.L in LDEQ letter of non-conformity of April 8, 1996 in Appendix XVIII.

I have personally examined and am familiar with the information submitted in the attached document, and I hereby certify under penalty of law that this information is true, accurate, and complete to the best of my knowledge. I am aware that there are significant penalties for submitting false information, including the possibility of fine and/or imprisonment.

Signature: (applicant) J. R. Lamberth
(property owner) same

Date: 8/23/96

Typed Name and Title: J. R. Lamberth, Plant Manager
(attach proof of legal authority to signee to sign for applicant)
(see Appendix III)

1105.N. third party documentation as required in LAC33:VII.1103.B; and

Non-Conformity

1105.N. *Provide the third party documentation as required in LAC.33: VII.1103.B.*

1103.B. *No permit for beneficial use can be issued by the administrative authority unless the applicant supplies written documentation from a qualified, independent third party, such as the Louisiana Cooperative Extension Service, the Louisiana Department of Agriculture, the Louisiana Department of Transportation and Development, or other appropriate organization that the proposed activity is a legitimate use of solid waste.*

Non-Conformity Response:

The Louisiana Department of Agriculture and Forestry (LDAF) has approved RECAL II registration as an agricultural liming agent annually since 1989. The most recent March, 1996 letter of approval of registration from the LDAF is provided in Appendix IV of these responses.

Appendix V of this submittal contains a letter of no objection from the LDEQ-Office of Water Resources prior to initial authorization to distribute in 1988. Distribution began in the first quarter of 1989.

Appendix VI of these responses contains several letters and reports from the Louisiana Cooperative Extension Service confirming that the use of RECAL II is an environmental and economic benefit.

Appendix VII of these responses contains two reports on the beneficial application studies of RECAL II, by LSU, Agronomy Department professors confirming that RECAL II is an effective liming agent with low concentrations of heavy metals.

1105.O. other information required by the administrative authority.

Not Applicable

APPENDIX I



Ciba-Gigy Corporation
Post Office Box 11
St. Gabriel, LA 70776

Telephone 504 842 1100

December 15, 1995

Mr. William Mollere
Administrator
State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
P.O. Box 82178
Baton Rouge, Louisiana 70884-2178

**RE: REQUEST FOR EXTENSION OF AUTHORIZATION TO DISTRIBUTE RECAL II
BEYOND DECEMBER 31, 1995**

This letter is to request a one year extension to December 31, 1996 of the authorization to distribute Recal II as a beneficial reuse material, which was issued by LDEQ-SWD on March 15, 1991 to Ciba Corporation, and which expires on December 31, 1995. A copy of that authorization is attached.

The request for this extension conforms with the instructions we received from your staff including Ms. Anita Peterson of the Permit Section, Ms. Denise Sibille, and Mr. Hoa Van Nguyen of the Engineering Section in a meeting we had on December 11, 1995 at the LDEQ-SWD offices.

The reason for the request for the extension is to allow distribution to farmers, through the coordination of the Louisiana Cooperative Extension Service, during the Beneficial Reuse Permitting application process which has begun as of December 11, 1995 and will extend beyond the December 31, 1995 expiration date of the March, 1991 LDEQ authorization.

We have reviewed the considerable data and information concerning the last six years of distribution program with your staff and are now preparing the permit application with this data under their advisement.

Recal II was the prototype Beneficial Reuse material for which Ciba went through a very extensive testing and authorization process with LDEQ and the Louisiana Department of Agriculture. The LDEQ Beneficial Reuse permitting regulations were promulgated primarily for a beneficial reuse facility several years after Ciba went through the Recal II authorization process for distribution to farmers as a soil amendment and liming agent. Your staff informs us that the permitting process also applies to the material and will be issued as a permit to distribute Recal II as a Beneficial Reuse material.

Please respond prior to the expiration date of December 31, 1995 because we do not have any storage capacity for the 3-4 truckloads/ week of this material. If we do not receive an extension our only recourse is disposal at Chemical Waste Management in Lake Charles at considerable expense to Ciba and loss to area farmers.

We thank you and your staff for your assistance in this endeavor.

Sincerely,

Murry McMillan
Group Leader
Environmental Regulatory Affairs Group



State of Louisiana
Department of Environmental Quality

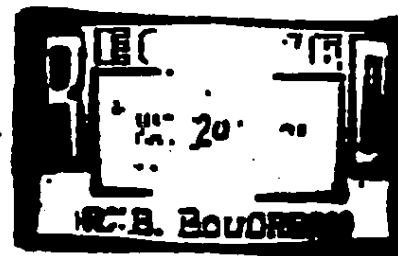


BUDDY ROEMER
Governor

March 15, 1991..

PAUL TEMPEL
Secretary

Mr. Richard S. Boudreau
Staff Environmental Chemist
Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, Louisiana 70776



RE: Ciba-Geigy
Distribution of RECAL II:
GD-047-0224/P-0017
Theravite 747111

Dear Mr. Boudreau:

Based on an extensive review of the RECAL II project report submitted by Ciba-Geigy December 3, 1991.. evaluation of your February 20, 1991 technical presentation, the February 22, 1991 site visit for process review, and the attached recommendations from the Water Pollution Control Division, the Solid Waste Division has determined that RECAL II distributions can be continued for five (5) years with the following stipulations:

1. Respondent shall provide waste analyses of all inlet waste streams to the Aqueous Waste Treatment Unit (AWT) to prove that they are not restricted hazardous waste streams. The analyses shall be provided initially and whenever the process changes or a new waste stream is added to the AWT.
2. Respondent shall provide narrative to describe how to monitor waste streams from all units entering AWT feed tanks.
3. Respondent shall provide hazardous waste characteristics (i.e., pH, reactivity, TCLP) of waste streams from AWT to filter press unit (i.e., one sample per year).
4. Whenever the process changes, in addition to testing for product specifications, Respondent shall provide sample analyses for reactivity (sulfide and cyanide).
5. Respondent shall provide analyses for TCLP heavy metals according to the following frequency:
 - a. whenever the process changes, every third load will be tested for TCLP heavy metals for three months. All tests (passing and failing) shall be reported to LDEQ.

2. at the beginning of the fourth season. The testing frequency for TCLF heavy metals can be reduced to one of every ten loads. If no samples have failed TCLF limits.

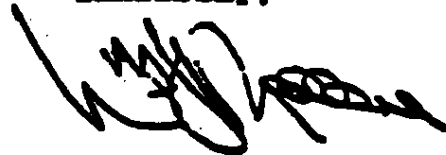
6. Soil pH from each proposed application site shall be provided to determine the need for high pH RECAL II.
7. For each proposed application site, soil analyses for CEC and the five restricted heavy metals (Pb, Zn, Ni, Cu and Cd) shall be provided to ensure that maximum allowable metal application shall not exceed the limit for each metal stated in LAC 33:VII.1305.H.1.b.

Annual reports shall be submitted to LDEQ during the operating life of the beneficial use RECAL II project. The reports shall contain analyses of test results, calculated amount of waste applied per acre, and total amount of heavy metals applied.

This approval to continue the beneficial use of RECAL II as a soil amendment agent will be effective through December 31, 1995.

If you have any questions, please contact Mrs. Charlotte Lancaster at (504) 765-2049.

Sincerely,



WILLIAM J. MOLLERE
Administrator
Solid Waste Division

WJM:CJL:dt



State of Louisiana
Department of Environmental Quality



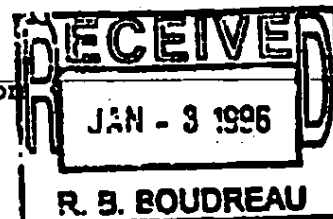
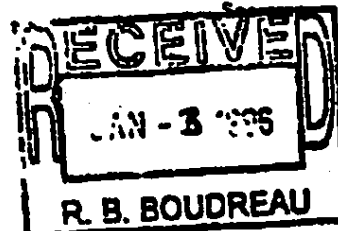
Edwin W. Edwards
Governor

December 28, 1995

William A. Kucharski

Mr. Murry McMillan
Environmental Regulatory Affairs Group
Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, Louisiana 70776

RE: St. Gabriel Plant
Extension for Recal II Distribution
GD-047-0224
Iberville Parish



Dear Mr. McMillan:

The Solid Waste Division is in receipt of your letter dated December 15, 1995, requesting a one-year extension to distribute Recal II as beneficial reuse material.

Your request is hereby approved, and therefore, you are authorized to continue distributing Recal II for a period not to exceed one year from the date of this letter.

In addition, please submit a Beneficial Use Permit Application in accordance with LAC 33:VII. Chapter 11 within thirty (30) days after receipt of this letter.

If you have any questions concerning this matter, please contact Ms. Yolunda Righteous of the Solid Waste Division at (504) 765-0249.

Sincerely,


GLENN A. JELLER
Assistant Secretary

GAM:YR:swd

OFFICE OF SOLID AND HAZARDOUS WASTE SOLID WASTE DIVISION P O BOX 82178 BATON ROUGE, LOUISIANA 70884-2178

TELEPHONE (504) 765-0249 FAX (504) 765-0299

AN EQUAL OPPORTUNITY EMPLOYER



APPENDIX II



Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, LA 70778

Telephone 504 642 1100

Certified Mail No. Z 061 658 786

March 27, 1996

Mr. William Mollere, Administrator
State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
P.O. Box 82178
Baton Rouge, Louisiana 70884-2178

**RE: Submittal of Louisiana Resource Recovery and Development Authority (LRDA) Letter of
Conformity with the Statewide Plan for Recal II Beneficial-Use Permit Application**

Dear Mr. Mollere:

Attached is the letter of conformity to the statewide plan from the Louisiana Resource Recovery and Development Authority stating that the Recal II Beneficial Use operation conforms with the applicable statewide plan. This letter is required for the Part I Beneficial Use permit application and is being submitted as an addendum to the permit application which Ciba-Geigy-St Gabriel Plant submitted to the LDEQ-SWD Permit Section on February 2, 1996. Please insert this letter into Part I, Appendix II of the application.

Thank you for your assistance in this matter. We would appreciate expeditious handling of the permit, because farmers are continuing to press for this material. If you or anyone on your staff has any questions regarding the permit application, please contact me at 504-642-1257.

Sincerely,

Richard B. Boudreau
Richard B. Boudreau
Senior Staff Environmental Engineer

Attachment



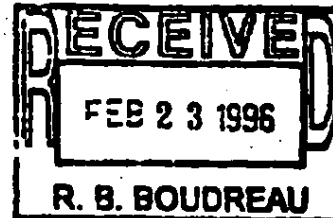
State of Louisiana
Department of Environmental Quality



W.L. "MIKE" FOSTER, JR.
GOVERNOR

J. DALE GIVENS
SECRETARY

February 21, 1996



Mr. Richard B. Boudreau
Senior Staff Environmental Engineer
Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, Louisiana 70776

Re: Request for Letter of Conformity
Ciba-Geigy Corporation
RECAL II
Iberville Parish

Dear Mr. Boudreau:

The above-referenced facility does not conflict with any plans or proposed facilities of the Louisiana Resource Recovery and Development Authority (LRRDA), as of this date.

If you have any questions concerning this matter, please contact me at (318) 898-4206.

Sincerely,

R. Brady Broussard
R. Brady Broussard
Chairman, LRRDA

RBB:sb

OFFICE OF SOLID AND HAZARDOUS WASTE SOLID WASTE DIVISION P.O. BOX 82178 BATON ROUGE, LOUISIANA 70884-2178

TELEPHONE (504) 765-0249 FAX (504) 765-0299

AN EQUAL OPPORTUNITY EMPLOYER



Louisiana
keep it Beautiful



Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, LA 70778

Telephone 504 642 1100

January 18, 1996

Mayor Brady Broussard, Chairman
Louisiana Resource Recovery Development Authority
State of Louisiana
Louisiana Department of Environmental Quality
Solid Waste Division
P. O. Box 82178
Baton Rouge, Louisiana 70884-2178

Dear Mayor Broussard:

Attached is a completed questionnaire for a letter of compliance from the LRRDA stating that the distribution of RECAL II (recycled calcium carbonate) to farmers conforms to the applicable state-wide Louisiana Resource Recovery Development Authority.

RECAL II is an agricultural lime substitute which has been distributed to local farmers since 1989 (32MM lbs). Ciba has performed this distribution under a special authorization from LDEQ. Now, Ciba is applying for a Beneficial Reuse Permit for continued distribution. During the six and one-half years it has been distributed as a liming agent, it has been extensively evaluated and proved safe and effective. The distribution is coordinated by the Louisiana Cooperative Extension Service and is supported by the Louisiana Department of Agriculture. Considerable testing and development has been performed since 1988 by both Ciba and the LSU Department of Agronomy on the material, demonstrating its safety and effectiveness as a liming agent for soil to improve crop yields.

Ciba must submit its permit application by February 2, 1996 because we have published the notice of intent to apply for the permit on December 23, 1995. Please assist us in providing the letter prior to this date.

Thank you very much for your assistance. If you have any questions regarding this request, please contact me at 504-642-1257.

Sincerely,

Richard B. Boudreau
Richard B. Boudreau
Senior Staff Environmental Engineer

RBB:kk

Attachment

cc: M. D. King
M. A. McMillan
R. W. Slaven
C. Wing

Louisiana Resource Recovery and Development Authority
Questionnaire for Letter of Compliance Applicants

Check as necessary: ☐ New Facility ☐ Expand Existing Facility
☐ DEQ Required Modification ☐ Construction and Demolition Debris
☒ Beneficial Use ☐ Compost Facility

RECAL II:

1. Facility Name/type Ciba-Geigy Corporation
2. Location 3905 Highway 75, St. Gabriel, Louisiana 70776
3. Parish Iberville
4. Name, phone and address of contact person Richard B. Boudreau, P. O. Box 11, St. Gabriel, LA 70776 504-842-1257
Senior Staff Environmental Engineer
5. Purpose of Project Provide Liming Agent to Area Farmers
6. Name local governments contacted Public notice published in Morning Advocate and Post South. Supported by La. Cooperative Extension Service & La. Dept. of Agriculture.
7. State how the proposed facility is in conformance with the Solid Waste Management Plan.
RECAL II is a dewatered calcium carbonate material precipitated from neutralization of hydrochloric acid. For 6.5 years, Ciba had an authorization from LDEQ to distribute material to local farmers as a liming agent coordinated by the Louisiana Cooperative Extension Service. This authorization was extended temporarily until December, 1996, while Ciba applies for a beneficial use permit. The material has undergone extensive testing and evaluation. Over 32 million lbs. has been distributed since 1989, saving farmers over \$500,000 and increasing yields.
8. State how the proposed facility does not conflict with local solid waste activities or plans.
RECAL II beneficial use is a classic example of a successful waste reduction activity which benefits farmers substantially. It has a history which demonstrates that it is safe, environmentally beneficial, and an effective liming agent which increases yields by improving the soil nutrient capacity. This is resource recovery.
9. Will the facility compete with any local government operated/owned solid waste facilities in the area? This permit application is not for a facility, but is for the RECAL II material itself. The material is used at multiple farm locations in the Baton Rouge area to increase soil pH. It is donated to needy farmers by Ciba in coordination with the Louisiana Cooperative Extension Service and the Louisiana Department of Agriculture.
10. State how the public interest, health, and environment will be protected by this project.
By performing good quality control, a material which was formerly filling landfills is now a useful material, improving crop yields, saving farmers money, and saving the company disposal costs. Calcium carbonate is not a danger to the environment. It is commonly used in agriculture as agricultural limestone.
11. State Senator Tom Greene District 17 State Rep. Roy Quezaine District 58

Staff comments: _____

Staff Recommendation: ☐ Grant Letter ☐ Withhold Letter ☐ Additional Information needed

Board Action: ☐ Granted, letter dated _____ ☐ Withheld. Letter dated _____
☐ Additional information requested, letter dated _____
Revised 3/95

APPENDIX III

POST SOUTH

P.O. Box 680 Plaquemine, La. 70765-0580

STATE OF LOUISIANA
PARISH OF IBERVILLE

BEFORE ME, the undersigned authority, personally came and appeared:

Joyce S. Hebert

Who after being duly sworn, deposed and said: THAT SHE is the Publisher of The POST/SOUTH, a newspaper published weekly in the Parish of Iberville, Louisiana. That the advertisement attached hereon was published in The POST/SOUTH on the 21st day of December 19 95


Joyce S. Hebert, Publisher

SWORN TO AND SUBSCRIBED BEFORE ME this 22th day of December, 19 95


Notary Public

Public Notice

Notice is hereby given that Ciba Corporation, St. Gabriel La. Plant, in Iberville Parish, intends to submit to the Louisiana Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid Waste Division, a permit application for the beneficial reuse of recyclable calcium carbonate (Recal II) as an agricultural soil liming agent for Louisiana farmers.

Comments concerning this permit application may be filed with the Secretary of the Louisiana Department of Environmental Quality at the following address:

State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
Permit Section
P.O. Box 82178
Baton Rouge, Louisiana 70884-2178

CAPITAL CITY PRESS

Publisher of

THE ADVOCATE

PROOF OF PUBLICATION

PUBLIC NOTICE

Notice is hereby given that Clba Corporation, St. Gabriel La. Plant, in Iberville Parish, intends to submit to the Louisiana Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid Waste Division, a permit application for the beneficial reuse of recyclable calcium carbonate (Recal II) as an agricultural soil liming agent for Louisiana farmers.

Comments concerning this permit application may be filed with the Secretary of the Louisiana Department of Environmental Quality at the following address:

State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
Permit Section
P.O. Box 82178
Baton Rouge, Louisiana 70884-2178

20214-dec 23-11

The hereto attached notice was published in THE ADVOCATE, a daily newspaper of general circulation, published in Baton Rouge, Louisiana, and the Official Journal of the State of Louisiana, the City of Baton Rouge and the Parish of East Baton Rouge, in the issues of:

DECEMBER 23, 1995

Tracy M. Murrell
Advertising Representative

Sworn and subscribed before me by the person whose signature appears above in Baton Rouge, La. on this

23

day of

DECEMBER 19 95

AD.

[Signature]
Notary Public

My Commission Expires:

Indefinite

857418

PERMIT APPLICATION

CIBA-GEIGY CORPORATION

CERTIFICATE OF AUTHORITY

Pursuant to the provisions of the Louisiana Solid Waste Management and Resource Recovery Law (SWL), La. R. S. 30:2151, et seq.), I, being a principal executive officer of the Corporation of at least the level of Vice President, do hereby certify that I have this day authorized and directed the plant manager, or his designee, as my duly authorized representative to complete, sign, and submit, in the name and on behalf of the Corporation, all reports or requests for information required by the Louisiana Solid Waste Management and Resource Recovery Law, the person designated in each instance being responsible for the overall operation of the facility from which any discharge originates:

IN WITNESS WHEREOF, I have hereunto affixed my signature on this 30th day of April, 1993.

Ciba-Geigy Corporation

By: Emilio Bontempo

JB Title: Emilio Bontempo, President
Crop Protection Division
Ciba-Geigy Corporation

APPENDIX IV

LOUISIANA DEPARTMENT OF AGRICULTURE & FORESTRY

Office of Agricultural & Environmental Sciences

Agricultural Chemistry Division

P. O. Box 25060, University Station

Baton Rouge, Louisiana

70894-5060

(504) 342-5812

LF

MATTHEW J. KEPPINGER II
ASSISTANT COMMISSIONER

BOB ODOM
COMMISSIONER

March 28, 1996

Ciba-Geigy Corporation

P. O. Box 11

St. Gabriel, LA 70776-0011

Attention: Kim Pagel

Dear Ms. Pagel:

Your application for registration of Agricultural Lining Materials has been reviewed and accepted for 1996.

Your company has been assigned Manufacturer Number 07. Please use this number on all correspondence with this office.

Enclosed are a copy of the cities and parishes, the parish codes and the list of codes for the different types of lime for your use. Please use the proper parish code and the code for the type of lime on your quarterly tonnage report.

If we may be of any further assistance, please contact me at the above address or telephone number.

Sincerely,

Norma M. Mack

Norma M. Mack
Administrative Secretary

NM

enclosures

APPLICATION FOR REGISTRATION OF AGRICULTURAL LIMING MATERIALS

LOUISIANA DEPARTMENT OF AGRICULTURE & FORESTRY
BOB ODOM, COMMISSIONER

Send all correspondence to the following address:
Louisiana Department of Agriculture and Forestry
Agricultural Chemistry Division
P. O. Box 91081
Baton Rouge, Louisiana 70821-9081

<u>CIBA-GEIGY CORP</u>		<u>504</u> <u>642-1100</u>
Name of Company		Telephone Number
<u>PO BOX 11</u>		<u>3905 MAY 75</u>
Mailing Address		Location
<u>ST GABRIEL LA</u>	<u>70776-0011</u>	<u>TAX ID# 131834438</u>
City and State	Zip Code	Social Security # or Federal Tax I. D. #

Kinds of Agricultural Liming Materials Sold: Check appropriate space(s).

	<u>RECALL I</u>	
Agricultural Liming Materials	<u>X</u> <u>RECALL II</u>	Ground Shells
Aragonite	_____	Hydrated Lime
Burnt Lime	_____	Marl
Calcite Liming Material	_____	Bulk
Cement Kiln Dust	_____	Suspension Materials
Chalk	_____	Ground Limestone
Dolomitic Liming Material (Solid)	_____	Dolomitic Liming Material (Liquid)
Other	_____	

I/We agree to submit quarterly reports to the Commissioner. The quarter shall end on the last day of March, June, September, and December as provided in R. S. 3:1367.

I/We agree to pay an annual registration fee of \$15.00 on or before March 31st.

I/We further agree to keep records necessary to accurately indicate the tonnage of agricultural liming materials and pay the fee of 10 cents per ton on each ton of material delivered in this state. The fee imposed by this Subsection shall be paid quarterly at the same time the tonnage report is filed.

I/We agree to permit the Commissioner or his duly authorized representative to examine these records at any time to verify the statement of tonnage.

KIM PAGEL
Company Representative (Please Print)
Kim Pagel
Signature (Sign above in ink.)
ENGINEER
Title
FEBRUARY 14, 1996
Date

FOR OFFICE USE ONLY	
<u>Hershel F. Morris, Jr.</u>	
Approved By	Hershel F. Morris, Jr.
Date	March 28, 1996
Guarantor Number	07

Submit in duplicate: ONE COPY WILL BE RETURNED AS CERTIFICATION OF REGISTRATION.
AAS-27-02 (R. 2/85)

List Of Lime Products

Description

AGRICULTURAL LIMING MATERIALS

- 2 ARAGONITE
- 3 BURNT LIME
- 4 CALCITE LIMING MATERIAL
- 5 CEMENT KILN DUST
- 6 CHALK
- 7 DOLOMITIC LIMING MATERIALS (SOLID)
- 8 GROUND SHELLS

-
- 9 HYDRATED LIME
 - 10 MARL
 - 11 GRANULAR
 - 12 PROCESS WASTE LIME
 - 13 BULK
 - 14 SUSPENSION MATERIALS

GROUND LIMESTONE

- 16 DOLOMITIC LIMING MATERIAL(LIQ)
- 17 PELLETIZED LIME
- 18 LAWN LIME
- 19 RECAL I
- 20 RECAL II
- 21 Boiler Wood Ash
- 22 OTHER

APPENDIX V



Paul H. Templet, Ph.D.
SECRETARY

OFFICE OF WATER RESOURCES
July 26, 1988

Maureen O'Neill
ASSISTANT SECRETARY

Mr. Richard B. Boudreau
CIBA-GEIGY Corporation
P.O. Box 11
St. Gabriel, LA 70776


Dear Mr. Boudreau:

Subject: AWT Calcium Carbonate Solids

Based on the information submitted on May 31, June 20 and June 29, 1988, the Water Pollution Control Division has no objection to the use of your Acid Waste Treatment Calcium Carbonate Solids as a soil amendment agent for local farmers. We understand that the Solid Waste Division is granting authorization for a one year trial period. Please submit a summary of the monitoring at the end of the one year period.

If you have any questions, please do not hesitate to contact me or Gary Aydeall.

Sincerely,


J. Dale Givens, Administrator
Water Pollution Control Division

JDG:GRA:dps
cc: John Koury
Jack Ferguson
Marion Fannaly
Capital Regional Office

APPENDIX VI



Louisiana State University

Agricultural Center

Louisiana Cooperative Extension Service

East Baton Rouge Parish Office
805 St. Louis Street
Baton Rouge, LA 70802
(504) 389-3038

December 4, 1995

William J. Mollere
Dept. of Environmental Quality
Administrator Solid Waste
P.O. Box 82178
Baton Rouge, LA 70884-2178

Dear Mr. Mollere:

Since the inception of this unique waste-lime program ten years ago, I have had the privilege of working as the Extension Service coordinator with Ciba Corporation waste minimization program for Recal I and II projects. The products of this program included a calcium carbonate lime slurry disseminated to farmers for adjusting low acidic soils. Farmers in eight (8) parishes have saved over one million dollars in liming cost on some twenty-five thousand acres of farmland being limed with Recal II. This figure does not include the cost savings resulting from more efficient fertilizer utilization.

A greenhouse study completed this month was conducted to evaluate the by-product, Recal II, as a liming material on acid soils used for crop production (corn and soybeans). The study was conducted by Dr. Donald L. Robinson, Professor Agronomy Dept. LSU, on November 16, 1995.

It is requested that you please review this enclosed data as requested by Ciba Corporation and the LSU Ag Center, for an increase use in Calcium Chloride CaCl_2 and other elements to Recal II.

The Louisiana Cooperative Extension Service approves four proposed changes having no detrimental effect on crop land used for pasture (forages) and row crop production for the following:

1. Calcium Carbonate (CaCO_3) change from approximately 75% to approximately 65% on a dry weight basis.
2. Solids to be changed from approximately 45% to approximately 38%.
3. Calcium Chloride (CaCl_2) changed from approximately 1% to approximately 3%.
4. Sodium Thiosulfate add to specification to approximately 150 ppm or less.

These changes will help provide a needed increase of Recal II being disseminated

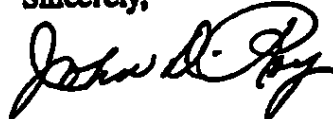
to farmers in this eight parish area.

Please review the enclosed findings and feel free to contact Dr. Donald Robinson, John Bruce, Ciba Corporation, or John D. Roy - County Agent East Baton Rouge Parish.

The challenge to farmers and agricultural scientists in the next decade will be to continue to provide a food supply to the American people that will be both affordable, safe, nutritious and can be produced on an environmentally sound and sustainable bases.

Thanks for assisting us in this worthwhile project which has placed the Louisiana Cooperative Extension Service - LSU Agricultural Center and Ciba Corporation at the forefront in contributing to the solution of significant community and agricultural problems in waste minimization.

Sincerely,



John D. Roy
County Agent
Coordinator
East Baton Rouge Parish

JDR/kg
Enclosures

cc: Dr. Larry Rogers, Vice Chancellor of Administration
Dr. Jack Bagent, Director and Vice Chancellor - LA Cooperative Extension Service
Terril D. Faul, Assoc. District Agent - District 2
John Bruce, Purchasing Group - Ciba Corp.
Richard Boudreaux, Environmental Chemist, Safety Health and Ecology - Ciba
Hoa Van Nguyen - DEQ Solid Waste
Dr. Bill Cochran, LSU Solid Waste
Jeanette Tucker, Parish Chairman - EBR Coop. Extension Service

December 6, 1990

Thomas Clausi
Plant Manager
Ciba-Geigy Corporation
St. Gabriel, Louisiana 70776

Dear Mr. Clausi:

For the past five years, I have had the privilege of working with Recal I and II projects which are recycled calcium carbonate industrial by-products.

As an off campus educational arm of the land grant university, the LSU Cooperative Extension has always had responsibilities toward agriculture and natural resources.

Ninety percent of the soils in East Baton Rouge Parish have pH values of 4.0 - 5.5. These low pH values result in reduced yields and inefficient utilization of fertilizers. With the increased cost of production and lower prices for farm commodities, it is difficult for farmers to invest in lime which cost approximately \$30.00 a ton applied. These acid soils rob our farmers of their profits. Agronomists agree that judicious liming programs are needed to control soil acidity which result in substantial increase in yield.

Recal I and II recycled by-products have shown substantial increase in farm profitability (indicated in Table V); which is a summary of yield data conducted over a two year period.

Community resource development is another area of my educational responsibility. Maintaining the quality of our environment is our primary goal. Solid waste management has become the biggest problem for local governments. The East Baton Rouge Extension Issues Task Force Advisory Committee, which is made up of a cross section of local citizens has set solving waste management problems as our Number 1 priority.

The East Baton Rouge Cooperative Extension Service, a part of the LSU Agricultural Center, has a close relationship with the State Department of Agriculture and various state and federal regulatory agencies. Together, we have at our disposal a wide range of expertise and testing facilities.

When Ciba-Geigy plant managers Norman Downey (retired) and you Tom, suggested that your by-product might be practical for use on farms, I solicited help from the LSU Agricultural Experiment Station, from local farmers and other people for laboratory on field testing of the materials. The effectiveness and safety of this product was a concern and that it could be used within the guidelines of the state Department of Environmental Quality and the federal Environmental Protection Agency.

The testing was planned and supervised by an advisory task force made up of chemical representatives, experiment station scientists, extension specialist, farm leaders and myself. I then enlisted the help of some key innovative farm leaders that have successfully used approved, cultural practices recommended by the LSU Cooperative Extension Service. I discussed all of the information I had with farm demonstrators, including experiment station test results and some of the problems they might encounter.

Ten farmers participated in Result Demonstration plots using Recal II lime. Because of test data and soil analysis, various rates and methods of application of shurry lime was applied. Special field days were planned and all farmers in the area had an opportunity to tour the demonstration test plots after completion.

In the past two years, ten East Baton Rouge Parish farmers have saved \$75,000.00 in lime costs on 1,000 acres of land treated with Recal II, and this does not include the cost savings from more efficient use of fertilizers.

Ciba-Geigy Corporation has shipped more than 5 million pounds of Recal II at no cost to farmers. This generous gesture by your corporation has provided a tremendous savings to the farmers in our community. The farmers in East Baton Rouge Parish would like to extend their thanks and appreciation to you for your corporation.

I believe this innovative project has placed the LSU Extension Service and Ciba-Geigy at the forefront in contributing to the solution of significant community and agricultural problems of the present time. There are other industries in this area that produce similar materials and these results indicate that if the scope of this practice can be broadened to cover a large area, we could increase farm profitability and save additional millions of dollars in disposal landfill costs.

Emphasis will be placed on recycling in the 90's. Ciba-Geigy Corporation is reaching into the future with the Recal II program. Thanks for going that extra mile !!!

Sincerely,



John D. Roy
County Agent
East Baton Rouge Parish

JDR:lro

**CIBA-GEIGY/NACAA
Agricultural Crop Production
Recognition Program**

**Utilization of Lime Waste To Aid
Depressed Farmers *Recal II***

**John D. Roy
County Extension Service Agent
805 St. Louis Street
Baton Rouge, Louisiana 70802
504-389-3056**

March, 1988

CIBA-GEIGY/NACAA
Agricultural Crop Production
Recognition Program

John D. Roy
County Extension Service Agent
East Baton Rouge Parish, Louisiana

Utilization of Lime Waste To Aid
Depressed Farmers

Situation and Problem:

East Baton Rouge Parish (county) is a major industrial parish which has significant agricultural acreage. It is surrounded by parishes which are primarily agricultural. Soybeans and commercial vegetables have been among the principal crops grown in the parish, along with feed grains and forestry products. East Baton Rouge farmers are facing another year of market prices at or below break-even levels for most major crop commodities. These conditions have made demands on the County Agent to develop alternate cropping systems and perform farm business analyses. Farmers and agribusiness leaders in the parish have consulted the Louisiana Cooperative Extension Service at Louisiana State University and the Parish Extension Office seeking means to improve the farm situation. One major means of assisting farmers to increase yields and therefore to increase profits has been developed and shows great potential.

There are many soils in East Baton Rouge and surrounding parishes with pH values of 4.0 to 5.5. These low values result in reduced yields and inefficient utilization of fertilizers. The increased cost of production inputs, coupled with lower prices for farm commodities, makes it difficult for farmers to invest in lime which cost some \$30 per ton. Agronomists agree that acid soils are robbing farmers of profits, and that judicious liming programs are needed to control soil acidity. Success in this area could substantially increase yields.

East Baton Rouge Parish has a large petro-chemical industrial complex. There are more than 50 chemical plants located within a 20-mile radius. The County Agent in the parish has a good working relationship with chemical plant representatives who often provide demonstration materials and financial support for grower meetings and field demonstrations.

The Ciba-Geigy Corporation plant at St. Gabriel, in adjacent Iberville Parish, is one of the largest herbicide plants in the world. Officials of the plant contacted the County Agent about three years ago with a unique concept to help depressed farmers in East Baton Rouge Parish. Ciba-Geigy had a liming by-product which it was disposing of as a waste in a sanitary landfill at a cost of approximately 5 cents per pound. The plant offered these materials to farmers at no cost for either the product or for transportation, if the materials could meet EPA standards.

The County Agent investigated the situation, and found this to be an opportunity which held great potential for making a significant contribution to the well-being of the farmers.

Educational Objectives

The primary educational goals of the program have been to make all farmers aware of the availability of the liming by-product as a soil fertility amendment, and to instruct them in the proper usage of the material. The primary objective was the increase the crop yields of the farmers in the parish.

Program Activities

Before initiating the program, the County Agent held a number of meetings with farmer groups and with individual farmers in the parish. The following items were discussed:

1. Farmers were alerted to the problems associated with usage of the by-product, one of which is that it is sticky when wet.
2. Testing of the material was undertaken, and farmers were given the results of technological findings, including a spectrographic analysis indicating that the liming by-products contained no inordinate rates of heavy metals, and met all environmental standards.
3. Producers were informed of safety factors involved in applying the liming amendment, techniques for applying it, and application rates as recommended by the LSU Soil Testing Laboratory.
4. Result Demonstration plots were established in designated areas throughout the parish.
5. The County Agent worked with the LSU Department of Agronomy in conducting greenhouse tests to determine specific data.
6. Field tours were conducted to present the results of field plot tests to farmers.
7. An advisory task force was organized, composed of chemical company representatives, Agricultural Experiment Station and Cooperative Extension Service agronomists, farm leaders and the County Agent.

Educational Methods

The seriousness of the agricultural economic situation, coupled with the cost-free availability of the liming amendment, made it imperative that fast action be taken by the County Agent and that response from farmers be immediate. Ciba-Geigy representatives proposed to the County Agent that the liming materials would be made available for research and demonstration

purposes. The proposal was accepted, and the material was analyzed by both a private laboratory and by Agricultural Experiment Station scientists. The results of the analyses are as follows:

Lime--by-product No. 1

Chemical properties of the by-products liming grit material

	<u>Percent</u>
Calcium carbonate equivalent (CCE)	106.3
Calcium (Ca)	42.7
Magnesium (Mg)	0.98
Moisture	6.5
Heavy metals were less than the maximum allowable amounts set by EPA	

The County Agent consulted with agronomists with the Agricultural Experiment Station and the Cooperative Extension Service about the value of using the liming amendment for soil fertility improvement, and the application rate, based on field data collected. Field data showed the following:

Effects of by-product liming material on soil pH at three soybean sites

<u>Location</u>	<u>Initial soil pH</u>	<u>Pounds/acre lime material</u>	<u>pH following liming</u>
Site 1	4.8	800	6.4
Site 2	5.2	500	6.7
Site 3	5.4	1000	6.8

¹One year after applying by-product lime

In addition to the immediate effect of the liming by-product on pH, the overall calcium content was increased, ranging from 700 to 1,000 parts per million.

During the spring of 1986, Ciba-Geigy made an offer of another liming by-product, slurry, for use as a pH adjuster in soil. The County Agent, working closely with the LSU Department of Agronomy and the chemical company, followed the same procedures, requesting analyses of the slurry. The following data were collected:

Lime--by-product No. 2

Production Availability:	60-80,000 lbs. per day
Solids:	40% (35%-40%)
EPA Tox. test:	Passed, further testing to be done
Classification:	Non-hazardous waste
Neutralization as 40% solid:	100 lbs. of slurry neutralizes 20 lbs. hydrochloric acid, or 26 lbs. sulfuric acid

Specifications Slurry Lime

	<u>Range</u>	<u>Average</u>
CaCO ₃	50-75%	65%
Ca(OH) ₂	.5-7.5%	4%
CaSO ₄	5-20%	11%
CaHPO ₄	1-2%	2%
Fe(OH) ₃	5-15%	6%
*CaCl ₂ H ₂	1-10%	6%
*NaCl	1-5%	2%
Inerts	1-10%	4%
pH	9-10%	10%

*High Soluble Salt Content

The test data clearly indicated that calcium chloride (CaCl₂) and sodium chloride (NaCl) were present in excessive amounts that could cause salt damage to sensitive crops.

Preliminary investigations were conducted on slurry under greenhouse conditions by Agricultural Experiment Station and Cooperative Extension Service agronomists and the County Agent. These indicated that the material can be used on acid soils for the production of soybeans.

The soil used in the investigations was Gallion silt, pH 5.2 loam from the Ouachita River alluvial area of Louisiana. The soybean cultivar was Centennial. The slurry rates on a dry basis were 0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, and 4.0 tons per acre. The material was applied to the soil surface, and mixed into the top two centimeters prior to planting soybeans.

Generally, there was an increase in dry matter production when 0 to 2 tons was applied per acre. Further applications of 2.5 to 4.0 tons per acre resulted in significant yield reductions. The data indicate that the material can be used up to and including the 2-ton rate. (See attached data of treatments in Table 1.)

Table 1. The influence of different rates of Ciba-Geigy slurry on dry matter production of Centennial soybeans grown on two soils in the greenhouse, 1986.

Slurry Treatments ¹	Dry Matter Yield	
	Soil Type	
	Gallion	Olivier
Grams/pot	Grams/pot	
0.0	0.483 b	1.900 ab
0.5	0.414 b	1.840 ab
1.0	0.659 b	1.948 ab
* 1.5	1.197 a	2.003 ab
* 2.0	1.362 a	1.700 b
2.5	0.825 a	1.842 ab
3.0	0.760 b	2.080 ab
3.5	0.771 b	2.108 ab
4.0	0.457 b	2.250 a
C.V.,Z	32.1	16.5

Yield values followed by the same letter are not significantly different at P 0.05, by Duncan's MRT.

¹Grams material/pot = tons/acre since each pot contained 1000 g of soil

A similar project involving slurry from another chemical plant in the Baton Rouge area was conducted by scientists working independently of the Ciba-Geigy project. This research, done at the Burden Research Plantation in Baton Rouge, confirmed the findings of the Ciba-Geigy analyses. It was found that this slurry was equal to or better than standard agricultural lime in increasing the soil pH. Normal rates of slurry lime mixed with an acid Olivier soil from Baton Rouge were effective in increasing yield of soybean plants in the field. It was effective in increasing soil pH, soil calcium levels and soybean yields.

The County Agent, working with a Cooperative Extension Service forage specialist, conducted two 6-acre forage legume demonstrations at a cattleman's ranch in the parish. Slurry at a rate of 1,000 pounds was applied to six 1-acre plots, along with six clover, ryegrass and fescue varieties. Evaluation of the plots was begun in the fall of 1986 and 1987.

The final demonstration plot was located on the grounds of the Ciba-Geigy plant, using 30 acres of commercial sweet corn varieties. One ton per acre of slurry was applied to half (15) of the acreage, while the other half was non-treated. Tissue analysis was run on the plants, showing no excessive sodium or chlorine buildup. The non-treated sweet corn varietal test plots yielded 1900 dozen ears per acre, while the plots treated with slurry yielded 3500 dozen ears per acre.

As County Agent, it is my responsibility to plan a program of work based on the data available. The initial steps are as follows, all of which have been accomplished:

- Step 1: Secure innovative key farm leaders who were successful farmers and adopted practices recommended by the Louisiana Cooperative Extension Service.
- Step 2: Discuss all available data with farm leaders, and establish demonstration plots to be used in the experiment.
- Step 3: Meet with chemical plant representatives and farm cooperators, outlining the site, methods of distribution and application.
- Step 4: Meet with farm cooperators to discuss the results of demonstration procedures.
- Step 5: Draft maps listing farmers' locations and tons of product the producer would receive.
- Step 6: Initiate plans for collecting data and evaluating results. Sampled lime to be tested for quality control. Collected soil samples at all farm sites.

In addition, the County Agent presented a slide program on "Waste Product Utilization" at the 1987 Annual Conference of the Louisiana Cooperative Extension Service, emphasizing "Team Work: The Key in Addressing Louisiana Priorities."

Evaluation

Since the inception of the waste-lime program was initiated 2 1/2 years ago, 20 farmers in East Baton Rouge Parish have saved a total of approximately \$200,000 in lime costs alone, liming more than 15,000 acres of farmland. This does not include the cost-savings resulting from more efficient fertilizer utilization. Ciba-Geigy Corporation at St. Gabriel has shipped more than 19 million pounds of this lime by-product to farmers at no cost. It is estimated that this plant will save more than \$500,000 in disposal costs annually.

Utilization of the slurry could not only save East Baton Rouge farmers a significant amount of money, but could also result in considerable savings for Ciba-Geigy. Indications are that this slurry carbonate would be much more effective in its chemical makeup and quality than the grit carbonate material.

Exploring such possibilities should benefit the farm industry far beyond the boundaries of East Baton Rouge Parish. Several other area parishes in which chemical plants are located are looking into utilization of similar waste products. In addition to helping the farmer, it results in improving the environment, and conserving land which is used in disposal of this usable waste product. The idea of a cost-free waste by-product being used by farmers in depressed areas is paramount in its total success, and could result in savings of millions of dollars.

APPENDIX 3
SUCCESS STORY FY 90

Parish/Area East Baton Rouge

Page 1 of 4

Name John D. Roy

1862 X 1890

If story does not fit on this form, use additional blank sheets. Identify and number them appropriately.

Attach copies of newspaper clippings, articles, brochures, reports, other supporting materials.

TITLE

Utilization of Lime Waste To Aid Depressed Farmers

TEXT (describe successful program, innovation, activity, team effort)

East Baton Rouge Parish (county) is a major industrial parish located in Southeast Louisiana. It also has significant agricultural acreage. The parish is surrounded by other parishes which are primarily agricultural. Soybeans, corn, wheat and commercial vegetables forage and beef cattle are among the principal crops grown in East Baton Rouge Parish. Farmers and others involved in agribusiness in the parish have looked to the Louisiana Cooperative Extension Service at Louisiana State University and the Parish Extension Office for methods to improve the farm situation. One major means of assisting farmers to increase yields, and therefore to increase profits, has been developed and shows considerable potential.

Many of the soils in East Baton Rouge Parish and surrounding parishes have pH values of 4.0-5.5. These low values result in reduced yields and inefficient utilization of fertilizers. With the increased cost of production and lower prices for farm commodities, it is difficult for farmers to invest in lime, which costs approximately \$30 a ton, to raise the pH. These acid soils rob farmers of profits. Agronomists agree that judicious liming programs are needed to control soil acidity, and that substantial increases in yield could result, if a means would be found to raise pH values at a low cost.

East Baton Rouge Parish has a major petrochemical industrial complex, with more than 50 chemical plants located within a 20-mile radius. The County Agent has worked to develop a good relationship with chemical plant representatives who often provide demonstration materials and financial support for producer meetings and field demonstrations.

The Ciba-Geigy Corporation has a plant at St. Gabriel, La in Iberville Parish, adjacent to East Baton Rouge Parish. It is one of the largest herbicide plants in the world. Officials of Ciba-Geigy contacted the County Agent four years ago with an offer involving a unique concept to assist farmers. The plant had a

liming by-product which it had to dispose of as a waste in a sanitary landfill at a cost of about 5 cents a pound. Ciba-Geigy offered these materials to farmers free of cost for both the product and for transportation, if the materials could meet EPA standards.

The county Agent investigated the offer thoroughly, and found it to be an opportunity with great potential for making a significant contribution to agriculture. For the past four years, he has worked diligently to implement the program.

Educational Objectives:

The primary educational goals of the program have been to make farmers aware of the availability of the liming by-product as a soil fertility amendment, and to instruct them in the proper usage of the material. The primary objective has been to increase the crop and forage yields.

Program Activities:

Before the program was initiated, the County Agent held a number of meetings with farmer groups and individual farmers in the parish. The following items were discussed:

1. Farmers were made aware of the problems associated with usage of the materials, one of which is that it is sticky when wet.
2. Scientific testing of the materials were done, and farmers were informed of the results of technological findings which included a spectrographic analysis indicating that the liming by-product contained no inordinate amounts of heavy metals, and met all environmental standards.
3. Farmers were advised of safety factors involved in application of the liming amendment. They were informed of techniques and rates of application as recommended by the Louisiana State University Soil Testing Laboratory.
4. Twenty result demonstration plots were established in designated areas.
5. The Louisiana State University Department of Agronomy worked with the County Agent in conducting greenhouse tests to determine specific data.
6. The County Agent conducted field tours to present the results of field plot tests to farmers.
7. An Issues Advisory task force was organized, composed of chemical plant representatives, Agricultural Experiment Station and Cooperative Extension Service agronomists, farm leaders and the County Agent.

8. Frequent contacts were made with governmental representatives, DEQ Solid Waste to secure approval of the usage of the materials.

Educational Methods:

The seriousness of the agricultural economic situation, coupled with the cost-free availability of the liming amendment, made it imperative that the County Agent act with due immediacy, and that the farmers respond likewise. Ciba-Geigy representatives proposed to the County Agent that the liming materials be made available for research and demonstration purposes.

A similar project involving slurry from another chemical company in the East Baton rouge Parish area was conducted by ~~scientists working independently of the Ciba-Geigy project.~~ This research, done at the Louisiana Agricultural Experiment Station's Burden Research Plantation in Baton Rouge, confirmed the findings of the Ciba-Geigy analyses. It was found that the slurry was equal to, or better than, standard agricultural lime in increasing the soil pH. Normal rates of slurry lime mixed with an acid Olivier soil from East Baton Rouge Parish were effective in increasing yields of soybeans in the field. It increased the pH, calcium in the soil and soybean yields.

The county Agent, working with a forage specialist with the Cooperative Extension Service, conducted two 6 acre forage legume demonstrations at a cattleman's ranch in East Baton Rouge Parish. Recal I at a rate of 1,000 pounds was applied to six 1-acre plots on which were planted clover, ryegrass and fescue varieties. Evaluation of the plots was begun in the fall of 1986 and in 1987.

Another demonstration plot was established on the grounds of the Ciba-Geigy plant where varieties of commercial sweet corn were planted on 30 acres. One ton of Recal II per acre was applied to 15 acres, and the other 15 acre, while the Recal II-treated plots yielded 3,500 ears. Tissue analyses were run on the plants. There was no excessive sodium or chlorine buildup.

Accomplishments

As County Agent, it is my responsibility to plan a program of work based on the data available. The initial steps, all of which have been accomplished, include:

Step 1: Secure innovative key farm leaders who are successful farmers and have adopted practices recommended by the Louisiana Cooperative Extensive Service.

Step 2: Discuss all available information with farm leaders, and establish demonstration plots to be used in the experiment.

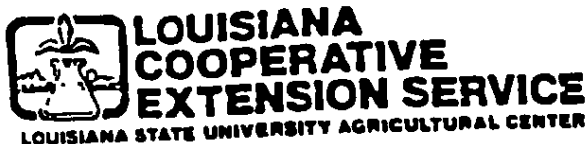
- Step 3: Meet with chemical company representatives and farm cooperators, outlining the site, and methods and rates of distribution.
- Step 4: Meet with farm cooperators to discuss the results of demonstration procedures.
- Step 5: Draft maps listing farm locations and tons of materials each farmer would receive.
- Step 6: Initiate plans for collecting data and evaluating results. Sample lime to be tested for quality control, and collect soil samples at each farm site.

Evaluation:

Since the inception of the waste-lime program was initiated 2 1/2 years ago, twenty farmers in East Baton Rouge Parish have saved a total of approximately 300,000 in lime costs alone, liming more than 15,000 acres of farmland. This does not include the cost-saving resulting from more efficient fertilizer utilization. Ciba-Geigy Corporation at St. Gabriel has shipped more than 30 million pounds of this lime by-product to farmers at no cost. It is estimated that this plant will save more than \$500,000 in disposal costs annually.

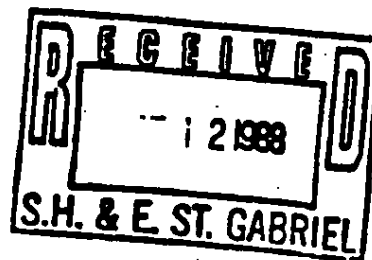
Utilization of the slurry could not only save East Baton Rouge farmers a significant amount of money, but could also result in considerable savings for Ciba Geigy. Indications are that this slurry carbonate would be much more effective in its chemical makeup and quality than the grit carbonate material.

Exploring such possibilities should benefit the farm industry far beyond the boundaries of East Baton Rouge Parish. Several other area parishes in which chemical plants are located are looking into utilization of similar waste product. The idea of a cost-free waste by-product being used by farmers in depressed areas is paramount in its total success, and could result in savings of millions of dollars.



125 Madison G. Street
Baton Rouge, LA 70803
504-388-1251

October 7, 1988



Mr. Hershel F. Morris, Jr.
Feed and Fertilizer Lab
H.D. Wilson Bldg. - LSU
Baton Rouge, LA 70803

Dear Mr. Morris:

I have worked with the use of Ciba-Geigy's by-product liming materials since 1985. These material can be used when applied at the recommended rate per acre to correct low soil pH, thereby improving the soil for crop production.

The information supplied by Ciba-Geigy in the application for registration of these products as Recal I and Recal II is in order and I recommend that these products be registered ok as a liming materials.

Sincerely,

Olen Curtis
Olen D. Curtis
Specialist (Agronomy)

/da

APPENDIX VII

EVALUATION OF RECAL II , A BY-PRODUCT LIME
FOR CIBA-GEIGY CORPORATION

BY A.G.CALDWELL, Ph.D., SOIL CHEMIST.

A.G. Caldwell

12-6-90

Evaluation of Recal II, a by-product lime from CIBA-GEIGY CORPORATION,
St. Gabriel, Louisiana.

By A.G. Caldwell, Ph.D., Soil Chemist.

Properties of Recal II

Recal II, a by-product lime, produced by Ciba-Geigy Corporation has CaCO_3 equivalence (Neutralizing Power) of over 75% on a dry basis. It contains other calcium compounds which add calcium equivalent of up to 20%. These enhance its value in plant nutrition but would not raise the soil pH. Like most by-product limes, Recal II has finer particles than most commercial limestones. The finer sizes result in more rapid neutralization of soil acidity and raising of soil pH. The Recal II has an adequate neutralizing power to be an effective liming material for Louisiana farmers. It represents a valuable asset because Louisiana has no limestone quarries and must import large quantities of limestone for liming acid soils from Texas, Missouri and Alabama at a high cost in freight.

Heavy metals in Recal II.

The content of heavy metals in Recal II is very low compared to the lifetime loading limits when one considers that the probable maximum rate of application would be only 1000 pounds per acre per year, although the amount added at any one time might be as high as 8000 pounds per acre. After such an application one would not expect to reapply lime for five or six years.

Lime needs of Louisiana soils.

Many upland soils in Louisiana need lime. This is especially true in East Baton Rouge and the Florida Parishes of Louisiana. They have pH's that are frequently in the low 5's and many in the 4's. Such soils are too acid for efficient growth of many agronomic crops such as corn, soybeans and pasture grasses. It is especially unfavorable for the growth of clover and other legumes which improve our pastures and reduce our dependence on synthetic nitrogen because they fix atmospheric nitrogen.

Most agronomic crops perform best if the pH is 5.7 or above. To assure this we generally lime to pH 6.5 and allow the pH to return to pH 5.7 before liming again. For alfalfa we need a higher pH, 6.5, and we lime to 7.5.

Lime applied to soils does not move except in the very sandy soils. Therefore we prefer to mix the lime into the soil by tillage after application. The benefits of lime extend for several years. In one experiment at Perkins Road Farm the benefits of one application of lime were still measurable in corn and cotton yields 13 years after liming. In a study at Burden Research Plantation soybeans still averaged 8 bushels more in the third year after they had been limed. Much of this response is from enhanced nitrogen fixation. The limed soybeans were larger, greener and higher protein than the unlimed beans.

Field studies with Recal II.

The extensive studies of Recal II (recycled calcium carbonate) by Mr. John Roy of the La. Cooperative Extension Service and by the Department of Agronomy have established the merits and the non-hazardous nature of this by-product lime.

The Recal II has adequate neutralizing power to be an effective liming material for Louisiana farmers. The studies show that the material adjusted the pH quickly. At ten (10) sites in East Baton Rouge Parish the pH was raised from an average of 5.5 before liming to an average of 6.5 eight to ten months later. This is an excellent result and is what the Extension Service hopes to achieve with tier lime recommendations.

Plant responses to Recal II.

AS is typical of experiments conducted in farmers fields, a number of the tests were not harvested and the response measured. Those that were measured gave the usual sort of yield response. Unlike fertilizers which give most of their response the first year, lime is expected to continue to give responses for several years after one application. The average response on the sites measured were +14.4% for corn, +6.8% for pasture (bahiagrass) and +5.2% for soybeans. The beans would have responded more on a more acid site (the unlimed pH was 5.7).

Heavy metals in the crops.

The tissue of the treated crops were analyzed for arsenic, barium, cadmium, copper, lead, mercury, nickel, selenium, silver and zinc. Although there is currently no recognized standard for these elements in crops, there was little increase in these elements in the produce from the treated plots compared to the untreated.

Heavy metals in soils.

Analysis of soil from treated and untreated plots reveal little if any additional arsenic, barium, cadmium, nickel, selenium, silver or zinc in the treated compared to the untreated plots. In the case of lead there was an average increase of 8 pounds of lead/acre in the treated plots. This compares quite favorably to the La.D.E.Q.'s lifetime loading limit of 1000 pounds/acre. Based on the average lead content in the Recal II there should have been only 0.01 pounds added per acre by a three ton application. There could be some problem in the analysis of the soils for lead. the worst scenario results in 1/125 of the loading limit, the best and more likely in a 1/100,000 of the loading limit.

Overall.

Recal II appears to be an effective liming material that contains very low concentrations of heavy metals. It effectively raised soil pH to desirable levels and increased yields in the manner expected with agricultural liming materials. It did not significantly raise the level of heavy metals in the soils or in the crops growing on the treated soils. At the rates of application that would be recommended by the La. Cooperative Extension Service Recal II will be effective and will not constitute a hazard in terms of the very small amounts of heavy metals and the modest amounts of calcium and sodium salts it contains.

Based on these observations and the advantage to Louisiana farmers and consumers I recommend the approval of this product to be applied at rates recommended by the La. Cooperative extension Service (Soil Testing Laboratory). The net effect will be a considerable reduction of material going to landfill and a great economic benefit to Louisiana farmers at little or no risk to the environment.



Louisiana State University

Agricultural Center

Louisiana Agricultural Experiment Station

Department of Agronomy
104 Madison B Sturge Hall
Baton Rouge, LA 70803-2110
(504) 388-2110
Fax: (504) 388-1403
E-mail: spes08@lsuvm.sncc.lsu.edu

November 27, 1995

Mr. John Bruce
CIBA Corporation
P.O. Box 450
St. Gabriel, LA 70776

Dear John:

Attached is my report of the greenhouse research, evaluating Recal II as a liming material for acid soils. This report is the same one I previously sent to you by FAX.

It is a pleasure to help in evaluating this by-product material and, hopefully, in allowing it to be utilized as a valuable resource.

Feel free to contact me anytime if I can be of further service.

Sincerely,

Donald L. Robinson
Professor

DLR:cr

Attachments

Recal II Evaluation for Corn and Soybean Production

**Donald L. Robinson, Professor
Agronomy Department, LSU
November 16, 1995**

A greenhouse study was conducted to evaluate a by-product, Recal II, as a liming material on acid soils used for crop production in Louisiana. The Recal II contained 83.4% CaCO_3 , 0.52% CaCl_2 , and 0.06% NaCl . It was applied to a Stough fine sandy loam soil of pH 4.3 at the rate of 3 tons of material per acre in pots containing 2 kg of soil. The Recal II and other needed plant nutrients were mixed with the soil. Increasing levels of CaCl_2 were added to the Recal II to give final concentrations of 0.5, 1.0, 2.0, 3.0, 4.0, 5.0 and 10.0% CaCl_2 in the Recal II. Corn and soybeans were grown separately in greenhouse pots receiving 3 tons per acre of Recal II containing the various percentages of CaCl_2 . All treatments were repeated with and without the addition of 100 p.p.m. sodium thiosulfate in to the Recal II. Two additional treatments, no lime and pure CaCO_3 equal to the CaCO_3 in Recal II, were also included. The 16 treatments applied to each crop were replicated four times in a completely randomized design in the greenhouse.

Lime and fertilizers were mixed with the soil and the soil was watered to field capacity. Corn and soybean seeds were planted 7 days later. Both crops were harvested after 6 weeks, dried at 70°C, and weighed.

Statistical analysis of the yield data in Table 1 indicated the following results:

1. Recal II was an effective liming material on Stough fine sandy loam as indicated by:

- a) slightly but not significantly higher corn yields with the addition of either Recal II or pure CaCO_3 .
- b) soybean yields that were increased over 4-fold by the addition of Recal II or pure CaCO_3 .

2. Calcium chloride in concentrations upto 10% of the Recal II did not influence corn or soybean yields where Recal II was applied at the rate of 3 tons per acre.

3. Sodium thiosulfate added to the Recal II at 100 p.p.m. had no effect on corn yield at any CaCl_2 level. Soybean yields were slightly but significantly lower with sodium thiosulfate at two of the seven CaCl_2 levels. This latter result is inexplicable and likely has no agronomic basis, but is probably a random result due to experimental error. Both ammonium thiosulfate and potassium thiosulfate are widely used as liquid fertilizers and are applied to the soil or directly applied to plant foliage. There is no agronomic reason to expect the minute concentrations (100 p.p.m.) of sodium thiosulfate to adversely affect plant growth when applied to the soil.

Soil test results showed that both Recal II and pure CaCO_3 increased soil pH from 4.3 to 5.2 at the rate applied. The rise in pH lowered exchangeable aluminum from 90 p.p.m. (a toxic level) to less than 20 p.p.m. (non-toxic level). These results further show that Recal II is an effective liming material.

Table 1. Yields of corn and soybeans grown on an acid soil in the greenhouse as influenced by rate of Recal II, calcium chloride, and sodium thiosulfate.

Materials applied, g/pot				Corn Yield		Soybean Yield	
Recal II	CaCl ₂	% CaCl ₂ in Recal		without Na T.S.	With Na T.S.	Without Na T.S.	With Na T.S. ¹
grams/pot							
1.	0	0	—	11.69	—	1.63	—
2.	6 ²	0.03	0.5	12.76	14.13	6.88	6.41
3.	6	0.06	1.0	13.83	12.84	7.45	5.72**
4.	6	0.12	2.0	12.38	13.50	7.05	6.14**
5.	6	0.18	3.0	13.45	14.05	6.23	6.34
6.	6	0.24	4.0	12.78	13.29	6.68	6.04
7.	6	0.30	5.0	13.40	13.28	6.64	6.56
8.	6	0.60	10.0	12.93	13.27	6.16	6.16
9.	CaCO ₃ (pure)	—		13.27	—	6.32	—

Least Significant Difference = N.S. for corn and 0.82 for soybean.

¹ Sodium thiosulfate (Na T.S.) was added to the Recal II at the concentration of 100 parts per million.

² Six grams per 2 kg of soil is equal to 3 tons per acre.

**Yields due to sodium thiosulfate are significantly different at the 95% probability level.

PART II

BENEFICIAL-USE

PERMIT APPLICATION

FOR

RECAL II

PART II

SUPPLEMENTARY INFORMATION

CIBA-GEIGY CORPORATION

ST. GABRIEL PLANT

ST. GABRIEL, LOUISIANA

SUBMISSION

AUGUST 23, 1996

1107. Part II Supplementary Information Required for Beneficial-use Facilities

The following information is required in the permit application for beneficial-use facilities. All responses and exhibits must be identified within the following sequence to facilitate the evaluation. Additionally, all applicable sections of LAC33:VII.1109 must be addressed and incorporated into the application responses. If a section does not apply, the applicant must state that it does not apply and why it does not apply.

Non-Conformity

- 1107.** *The regulatory requirements in 1107 (Part II) shall be included in the permit application with the responses immediately following.*

Non-Conformity Response:

Part II of the original application submittal of February 2, 1996 listed the subject of each regulatory subsection of Section 1107 with the responses immediately following. Upon discussion with the permit writer after receiving the lack of conformity letter, it was determined that a reformatted Part II including all of the regulatory language followed by the responses would be included in a final submittal after the non-conformity responses are reviewed and the application meets LDEQ's requirements. The resubmittal of August, 1996 is reformatted to include all the regulatory language and the Ciba responses to the LDEQ, non-conformity notice.

- 1107.A.** Location Characteristics. Standards pertaining to location characteristics are contained in LAC33:VII.1109.A.

- 1107.A.1.** Area Master Plan. A location map showing the facility, major drainage systems, drainage flow patterns, location of the 100-year floodplain, and other pertinent information. The scale of the maps and drawings must be legible, and engineering drawings are required.

This is not applicable because this permit application is not for a specific site, but for one beneficial-use material to be used by local farmers on their farmlands. There will be multiple sites which are not presently known. These sites are selected by the Louisiana Cooperative Extension Service based on need and communicated to the Ciba purchasing representative, normally several weeks prior to the first shipment to that site. The farmer provides directions and a copy of a section of the applicable map showing the location of the farmer's site to the Ciba purchasing representative. Ciba provides a copy of the farmer site location map to LDEQ with the annual report.

- 1107.A.2.** Environmental Characteristics. The following information is required.

- 1107.A.2.a.** a list of all known recreation areas, designated wildlife management areas, swamps and marshes, wetlands, habitat for endangered species, and other sensitive ecological areas within 1,000 feet of the facility perimeter or as otherwise appropriate;

The location of environmentally sensitive areas, water supply systems, etc., is not applicable to the use of RECAL II because it is a demonstrated safe and effective agricultural liming agent and not a solid waste which could present a threat to any environmentally sensitive area any more than any typical farmer and his activities could present to such areas.

- 1107.2.b. documentation from the appropriate state and federal agencies substantiating the recreation areas, designated wildlife management areas, wetlands, habitat for endangered species, and other sensitive ecologic areas within 1,000 feet of the facility; and

Not applicable.

- 1107.2.c. a map showing the locations of all known locations of all public water systems, industrial water wells and irrigation wells within one mile of the facility.

Not applicable.

- 1107.B. Facility Characteristics. Standards concerning facility characteristics are contained in LAC33:VII.1109. A facility plan, including drawings and a narrative, describing the information required below must be provided:

- 1107.B.1. elements of the beneficial-use system employed, including as applicable, property lines, original contours (shown at not greater than five-foot intervals), units of the facility, drainage, ditches, and roads;

- 1107.B.2. security and signs;

These are not applicable to this permit application because the sites using the beneficial use material are farms. Farms typically have specified property lines, drainage, and fences as necessary. RECAL II has been demonstrated over the last six and one-half years of agricultural distribution to be a safe and effective liming agent. No greater restrictions to access need be demonstrated than those used at a typical farm which use other liming agents and agricultural products.

- 1107.B.3. buffer zones; and

This is not applicable to this permit application, because farms do not typically have specified buffer zones. None should be established for RECAL II use because limiting application would reduce the farmers yield per acre where the soil was not treated with RECAL II.

- 1107.B.4. other features, as appropriate:

Access to fire protection and medical care: This is not applicable to the use of RECAL II on a farm as a liming agent. RECAL II is a non-combustible material and is provided with a Material Safety Data Sheet and Instructions for use (see Appendix VIII).

Monitoring and controlling application rates and quantities used: The Louisiana Cooperative Extension Service shall designate the farmer,

establish the application rate by testing the soil for pH and nutrient content (See example test report in Appendix VIII), and communicates the number of acres for the site, and the recommended application rate to the Ciba-St. Gabriel buyer. The Ciba purchasing representative determines the number of loads based on the acreage and application rate. The instructions and contract are acknowledged by the farmer. The Cooperative Extension Service also provides the farmer location and mapping information to Ciba. Ciba provides a calibrated distribution device to the farmer which is coordinated by the Cooperative Extension Service. Ciba quality controls and weighs each load prior to delivery, and maintains record of the exact quantities shipped to each site. This allows accurate determination of the application rate in lbs/acre and maintaining complete quality control and shipping records. All of this information is provided to LDEQ in the annual reports. See the operational plan provided in Appendix X.

1107.C. Facility Geology. The following information regarding geology is required:

- 1107.C.1.** a general description of the soils, provided by a qualified professional (such as a geotechnical engineer, soil scientist, or geologist) along with a description of the method used to determine soil characteristics; and

This is not completely applicable to the distribution of RECAL II. Nevertheless, a general description of the soil types for each site will be provided by the Louisiana Cooperative Extension Service from the LSU Agricultural Center Agronomy Lab Report to the Ciba contact. This information, in the form of the lab report for each site, will be included in the annual report. (See example in Appendix VIII).

- 1107.C.2.** logs of all known soil borings taken on the facility.

Not applicable.

- 1107.D.** Certification. The person preparing the permit application must provide the following certification:

"I certify under penalty of law that I have personally examined and I am familiar with the information submitted in this permit application and that the facility as described in this permit application meets the requirements of the solid waste rules and regulations. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment."

Note: The certification given in the regulations for this section is for information concerning a "beneficial-use facility" which is not applicable to this permit application. Only one word in the following certification has been changed to apply to the information in this permit application. The word "facility" has been replaced with "material" to refer to the RECAL II rather than a specific facility where a solid waste will be used.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and that the facility as described in this permit application meets the requirements of the solid waste rules and regulations. I am aware that there are significant

penalties for knowingly submitting false information, including fine or imprisonment."

Signature Richard B. Boudreau

Date 8/23/96

Typed Name Richard B. Boudreau

1107.E. Facility Administrative Procedures. Standards governing facility administrative procedures are contained in LAC33:VII.1109. The following information on administrative procedures is required for all facilities:

1107.E.1. a recordkeeping system, types of records to be kept, and the use of records by management to control operations;

The following is a list of records to be kept at the Ciba, St. Gabriel Plant:

1. site locations where RECAL II is distributed.
2. distribution agreement with each farmer. (See example in Appendix VIII).
3. farmers acknowledgment of handling instruction. (See example in Appendix VIII)
4. LSU Agronomy Lab report from Louisiana Cooperative Extension Service showing before application soils test data, soil type, farmers name and location, crops to be grown, and recommended lime application rate. (See example in Appendix VIII)
5. a copy of the topographical map depicting the farm site.
6. all quality control test data obtained on each load and certificate of analysis. (See example in Appendix IX).
7. total weight of the load delivered and date shipped.
8. actual and recommended loading rate of RECAL II at each site. (See Appendix XIII and XIV.)

Annual reports will be submitted similar to those issued to LDEQ-SWD since 1990 including all of the above information. Examples of the method of handling agreement and the distribution agreement are included in Appendix VII.

Non-Conformity

1107.E.1. Incorporate the standards in 1109.F.1.a-h into the response to this section.

Non-Conformity Response:

The standards in 1109.F.1.a-h are incorporated into the responses to this section as requested in the LDEQ notice of non-conformity. The following are the standards of 1109.F.1 a-h and the responses to these standards.

1109.F.1.a. Reports

1109.F.1.a.i. The permit holder shall submit annual reports to the administrative authority indicating quantity and types of solid waste beneficially used, (expressed in wet-weight tons and dry-weight tons per year), during the reporting period. All calculations used to determine the amounts of solid waste received for processing or disposal during the annual reporting period shall be submitted to the administrative authority. A form for this purpose must be obtained from the administrative authority. The following standards apply to reports;

1109.F.1.a.ii. The reporting period shall be from July 1 through June 30, commencing July 1, 1992 and terminating upon closure of the facility in accordance with the permit.

Ciba will submit annual reports using the LDEQ designated form showing the wet/dry weight in tons of RECAL II per year for the reporting period distributed to each site.

1109.F.1.iii. Annual reports shall be submitted to the administrative authority by August 1 of each year.

Ciba will submit annual reports to the administrative authority by August 1 of each year.

1109.F.1.iv. The annual report is to be provided for each individual permitted facility on a separate annual reporting form.

Ciba will report the quantity of RECAL II received by each farmer's site on a separate reporting form or as directed by LDEQ.

1109.F.1.v. Facilities which receive industrial solid waste shall utilize, in their annual report, the seven digit industrial waste number that has been assigned by the Solid Waste Division to the industrial solid waste generator.

Since Ciba will distribute to multiple farmers' locations, Ciba requests a single beneficial-use permit for multiple beneficial-use locations as provided in LAC 1103.C. (see below) except that Ciba is not "disposing" at these sites. This use of RECAL II is not disposal.

Ciba is allowing the farmers to use a useful, safe material because this is the most environmentally sound disposition for the material.

1103.C. The administrative authority may issue a single beneficial-use permit for multiple beneficial-use locations provided that the permit application includes required information for each location, each location meets the standards provided in this Chapter, and the same solid waste streams (from a single generation site) is disposed of at all locations. The multiple locations will be considered as one facility and each location will be a unit of the facility.

Ciba requests a single beneficial-use permit for multiple farmers' sites to be selected by the Louisiana Cooperative Extension Service. RECAL II is not disposed at any of the locations, but is used as a liming agent.

1109.F.1.a.vi. Reports shall be submitted as provided in Subsection F.1.b.vi-ix of this section.

There are no such sections in the LDEQ-Solid Waste Regulations.

1109.F.1.b. Recordkeeping

1109.F.1.b.i. The permit holder shall maintain all records specified in the application as necessary for the effective management of the facility and for preparing the required reports. These records shall be maintained for the life of the facility and shall be kept on file for at least three years after closure.

Ciba will maintain all records as stipulated in this permit for the life of the permit. Records shall be kept for at least three years after RECAL II production is discontinued.

The following is a list of records to be kept at the Ciba, St. Gabriel Plant:

- 1) ~~site locations where RECAL II is distributed.~~**
- 2) distribution agreement with each farmer. (see example in Appendix VIII of application)**
- 3) farmers acknowledgment of handling instructions. (see example in Appendix VIII of application)**
- 4) LSU Agronomy Lab report from Louisiana Cooperative Extension Service showing before application soils test data, soil type, farmers name and location, crops to be grown, and recommended lime application rate. (see example in Appendix VIII of application)**
- 5) a copy of the topographical map depicting the farm site.**
- 6) all quality control test data obtained on each load and certificate of analysis. (see example in Appendix IX of application)**
- 7) total weight of all loads delivered and data shipped.**
- 8) actual and recommended loading rate of RECAL II at each site (see Appendix XIII and XIV of application.)**

1109.F.1.b.ii. Records kept by the permit holder shall include (but not be limited to):

1109.f.1.B.ii.a daily log.

Daily logs are kept by Ciba Environmental Operations on the unit where RECAL II is produced. Daily logs are kept by the lab technicians performing the shipment and batch testing of the RECAL II. Daily shipping logs are kept by the Environmental Operations department.

1109.F.1.b.ii.b quality-assurance/quality control records.

Quality-assurance/quality control records are kept by the Ciba Analytical Applications Group and the Ciba Environmental Regulatory Affairs Group.

1109.F.1.b.ii.c inspections by the permit holder or operator.

Production site inspections are performed M-F by the Environmental Operations day supervisor. These site inspections are not specifically recorded.

Application site inspections are performed at least once for each site by the Ciba buyer and the Ciba Environmental Operations day supervisor when the farmer and the Ciba buyer signs the handling instructions agreement and the trucking company is given delivery instructions at the site. The application site inspections are not specifically recorded other than the signatures and dates on the handling instructions. See example copy of handling instructions acknowledgment form in Appendix VIII of the application.

1109.F.1.b.ii.d monitoring, testing, or analytical data

Any other recordkeeping including other types of testing and/or analytical data will be kept in the Ciba, Environmental Regulatory Affairs Group (ERAG) files.

1109.F.1.b.ii.e Any other applicable or required data deemed necessary by the administrative authority.

All other records are kept in the Ciba, ERAG files by the member of the ERAG group responsible for waste minimization documentation.

1109.F.1.b.ii.f Copy of the semi-annual soil waste mixtures tests and analyses of the results, with conclusions, submitted semi-annually to the Solid Waste Division, or more frequently if deemed necessary by the administrative authority.

The Louisiana Cooperative Extension Service will provide the before application soil sampling and testing data to Ciba. The soil classification, cation exchange capacity, organic matter in the soil, soil pH, sodium, calcium, magnesium, potassium, phosphorus, and the recommended liming agent treatment rate have been provided by the LSU Agronomy Lab Report of the testing performed on the farmer's soil from samples taken by the Louisiana Cooperative Extension Service. An example of such a report is provided in Appendix VIII of the application.

Since 1987, Ciba has performed extensive evaluations, testing, greenhouse studies, monitoring on-site field tests, farm field tests. The use of the material has been coordinated by the Louisiana Cooperative Extension Service, the Louisiana Department of Agriculture, and authorized by LDEQ-SWD on forty-nine farm sites in the parishes of East Baton Rouge, West Baton Rouge, Iberville Parish, Ascension, East Feliciana, Pointe Coupee, and Livingston. Since 1989, Ciba has distributed over 20,000 tons of RECAL II under LDEQ authorization to area farmers.

The safety and effectiveness of RECAL II as an agricultural liming agent has been well demonstrated and documented to LDEQ in reports issued to LDEQ-Solid Waste Division on May 31, 1988, November 30, 1990, October 21, 1993, October 28, 1993, October 26, 1994 and December 8, 1995.

Based on all of the reports listed above, the demonstrated safe, effective use over the last ten years, and the recommendations of the Louisiana Cooperative Extension Service, testing of the soil after application of RECAL II for any parameter other than the normal agronomy testing

typically performed by a farmer after application of agricultural limestone, is not necessary.

1109.F.1.b.ii.g Test parameters shall consist of cation-exchange capacity, soil pH, total nitrogen, phosphorus, organic matter, salts (intrinsic to the waste), cumulative metals, and any others deemed necessary on a site and waste specific basis.

The cation-exchange-capacity, soil pH, total nitrogen, phosphorus and organic matter are parameters applicable to soil testing before application of a liming agent to determine the need and dosage of a liming agent. These tests are not applicable to soil testing after application of a liming agent if the liming agent is known to be effective. Since the Louisiana Cooperative Extension Service and Ciba Corporation have extensive data on 43 sites through July of 1995 (see referenced reports in above section), RECAL II has been demonstrated to be safe and more effective than agricultural limestone (ground).

As shown in each of the RECAL II reports submitted to LDEQ-Solid Waste Division since 1988, there is no longer any need to test either the farmers soil before or after application of RECAL II for Cd, Ni, Zn, Pb, or Cu or any heavy metals. The very large data base of Cd, Ni, Zn, Pb, and Cu analyses on 102 shipments of RECAL II has resulted in a very accurate determination of these metals in each load and the metal loading rate without any further analyses. The concentration of these metals in each load is well known using this data base. Using the total quantity of RECAL II delivered to each site and the total acreage at the site treated by the farmer, Ciba has determined very accurately the loading rate of each of these metals to each site to which RECAL II has been applied. Ciba has reported these loading rates in each of the annual reports issued to LDEQ on RECAL II since 1990.

There is no need to analyze the farmers' soil before or after application of RECAL II for the metals listed above or any heavy metals. Since 1988, RECAL II has been distributed to 43 farmers' sites (no repeat locations) under LDEQ and Louisiana Department of Agriculture authorization and Louisiana Cooperative Extension Service coordination. A summary of the before application metals data in soils and the RECAL II metals concentrations are shown in Appendix XVI. For each metal the maximum metal concentration in the soils is greater than the average RECAL II metals concentration.

Each of the reports since 1988 shows that, even if RECAL II were applied every year for hundreds to thousands of years, the LDEQ-SWD metals loading limits would not be exceeded. (See copy of Tables IV and V from the most recently submitted RECAL II annual report included in Appendix XIII of the application which lists the actual RECAL II loading rate and the metal of concern loading rate for five sites compared to the lifetime limit.) In addition, Table V in Appendix XIII of the permit application shows the hundreds or thousands of years of yearly applications necessary to exceed the lifetime loading rate limit. Further, discussions with the EBR Parish Cooperative Extension Service County agent confirms that typical liming

frequency in this area with agricultural lime is no more frequent than every 3 years. With RECAL II, liming will be necessary only every 4-5 years.

Since it is truly impossible to exceed the LDEQ metals loading limits, and extensive data has been accumulated to demonstrate this fact, metals analysis of the RECAL II, metals analysis of the soil before application, and metals analysis of the soil after application are not necessary.

1109.F.1.b.ii.h Annual reports of the analysis of all tests results on the soils; land-use, and cop information, calculated amounts of waste applied per acre shall be submitted.

Annual reports will be submitted similar to those issued to LDEQ-SWD since 1990 including all of the information listed in the response to LAC 33:V.1109.F.1.b.i Metals analyses of the soil before application and metals analyses of the RECAL II is no longer necessary. An extensive data base exists which (1) allows accurate determination of metal concentrations in each load without any additional RECAL II metals analyses and (2) allows an accurate determination of metals loading rates for the LDEQ-SWD limited metals (Pb, Cu, Cd, Ni and Zn) based on RECAL II loading rates. Actual RECAL II application rates will also be reported in the annual reports.

1107.E.2. an estimate of the minimum personnel, listed by general job classification, required to operate the facility; and

This is not applicable to this permit because this permit application is not for a facility permit. This is an application for a beneficial-use permit for the RECAL II material.

1107.E.3. the maximum days of operation per week and per facility operating-day (the maximum hours of operation within a 24-hour period).

Normally, RECAL II will be delivered only in daylight hours, seven days per week, fifty-two weeks per year. Typically, no more than one to two 16-ton loads per day can be delivered. The maximum shipped in one day was three 16-ton loads. The St. Gabriel Plant can ship up to four loads/day if necessary without acquiring additional trailers.

1107.F. Facility Operational Plans. Standards governing facility operational plans are contained in LAC 33:VII.1109. The following information is required:

1107.F.1. types of waste (including chemical, physical, and biological characteristics), maximum quantities of wastes per year, and sources of wastes that are to be beneficially used;

Types of wastes to be beneficially used. RECAL II is the trade name for recyclable calcium carbonate. The typical chemical characteristics are given in detail in the table in Appendix X. The physical characteristics are such that RECAL II is a dry solid cake which crumbles with mild pressure to a fine, granular material. These physical characteristics provide ideal conditions with respect to lack of dusting during handling prior to spreading and the final mixing into the soil. Users have determined that because of its

chemical and physical characteristics RECAL II lasts longer as a liming agent than conventional agricultural lime. Land treated with conventional agricultural lime requires reliming approximately every three years in this area. With RECAL II reliming is required every 4-5 years. Maximum quantity of material per year beneficially used. The maximum quantity of this material beneficially used per year will be normally about 5000-6000 tons, this could be greater under unusual production years, but will typically average about 3000 tons per year.

Sources of the material. RECAL II is the trade name for Calcium Carbonate Solids which originate from the neutralization operation in the effluent treatment area of Ciba-Geigy-St. Gabriel Plant. Part of the NPDES treatment operation of the Ciba-Geigy-St. Gabriel Plant is an elementary neutralization of seven aqueous waste streams which are combined using a computer controlled neutralization process called the Aqueous Waste Treatment (AWT) Unit. The AWT Unit process is illustrated with a block flow diagram in Appendix XI. The Calcium Carbonate Solids precipitate in the neutralization tank of the AWT process during the computer controlled mixing of the seven waste streams which are being neutralized. Since the largest volume waste stream being neutralized is an 11% aqueous hydrochloric acid solution, slaked lime (aqueous calcium hydroxide) is added as a neutralizing solution. The slaked lime is produced from purchased anhydrous lime (CaO) because it is significantly lower in cost than liquid caustic (sodium hydroxide). The Calcium Carbonate Solids are removed by conventional gravity clarification and settling. The settled calcium carbonate slurry is dewatered by filter pressing. The resulting filter pressed solids are loaded directly into tractor trailers for quality control sampling and testing.

The seven waste streams which are neutralized in the AWT process and their classifications are described below:

<u>Description</u>	<u>Classification</u>
1. 11% aqueous hydrochloric acid by-product	D002 (corrosivity)
2. Spent 6% aqueous caustic (sodium hydroxide) from CC unit vent scrubber	D002, D022 (corrosivity, chloroform)
3. CC unit dryer drains (aqueous 10% CaCl ₂ , dilute HCl)	D002, D010 (corrosivity, selenium)
4. Demineralizer Waste (aqueous 4% sulfuric acid)	D002 (corrosivity)
5. Process Water Clarifier Blowdown (aqueous 4% sulfates)	Non-hazardous
6. HCN unit effluent (aqueous 0.1% ammonia, 0.003% CN, 0.5% sulfuric acid)	D002 (corrosivity)
7. Sequestrene unit vent scrubber blowdown (aqueous 0.1% sulfuric acid, 0.1% ammonium sulfate)	D002 (corrosivity)

The process description is given in Appendix XI as well as a detailed description and characterization of these waste streams. Lab reports for the hazardous waste characteristic testing for each of these waste streams, the AWT Clarifier underflow after the neutralization tank, and full TCLP testing on the dewatered RECAL II from the 1991 LDEQ authorization are provided in Appendix XI.

The AWT Clarifier Underflow and the dewatered RECAL II have demonstrated that they meet all hazardous waste characteristic testing as non-hazardous material.

The source of the 13 ppm chloroform, TCLP characteristic, in the spent caustic waste stream from the CC unit vent scrubber is from the CC unit vessel and system vents which are vented to a caustic scrubber. The source of the 2.3 ppm selenium, TCLP characteristic, in the dryer drains from the CC unit to the AWT unit is the granular calcium chloride which is the drying agent used in the dryers. The calcium chloride supplier confirmed the selenium content of the drying agent which is a common trace contaminant in materials which are derived from the earth.

Each of these seven waste streams loses its characteristics of hazardous waste during the neutralization process. The neutralization process is exempt from RCRA permitting because the Aqueous Waste Treatment Unit is a wastewater treatment unit permitted under the Clean Water Act by NPDES permit no. LA0005487. This exemption also exempts the RECAL II from any land disposal restrictions even though it meets all land disposal restrictions. Since LDEQ authorized distribution of RECAL II in 1988 through June 30, 1995, Ciba has made 897 shipments to farmers, involving over 8700 quality control parameters which include the following:

- 102 TCLP's for RCRA metals
- 102 Totals analyses for Cd, Ni, Zn, Pb, Cu
- 6 full TCLP's

RECAL II has met all hazardous waste characteristic testing as non-hazardous materials.

Non-Conformity

1107.F.1 *Please clarify whether or not RECAL II is spent calcium carbonate generated from treatment of a waste; is it in contact with or contaminated with seven (7) waste streams? Identify the key contaminants and the concentration limits of each contaminant in the RECAL II.*

Non-Conformity Response:

RECAL II is not spent calcium carbonate. It is active calcium carbonate which is why it serves as an agricultural calcium carbonate liming agent. Typical agricultural calcium carbonate is called agricultural limestone. RECAL II is precipitated from neutralization treatment of seven characteristically hazardous waste streams. The precipitated solids are not contaminated with the seven waste streams because those waste streams no longer exist after neutralization. The major contaminant is entrained water from the dewatering operation. The water filtrate is discharged to the Mississippi River under an NPDES, Clean Water Act permit. The typical characterization is shown in the table in Appendix X of the application. A comparison to typical agricultural limestone is shown below:

	Typical RECAL II	Typical AG Limestone
Water	<62%	12.4%
Calcium Carbonate	25-40%	83.6%
Calcium Sulfate	2-25%	0.13%
Calcium Phosphate	0-10%	1.0%
Calcium Hydroxide	0-5%	<0.1%
Calcium Chloride	0-3%	0.04%
Iron Hydroxide	0-2%	0.2%

The table in Appendix X of the application lists the typical chemical characteristics and contaminant possibilities with the maximum concentration of each. None of the total 1,400 loads analyzed have failed the specifications listed in Appendix X of the application.

A comparison of metals concentrations of RECAL II to metals concentrations of fifty-five local agricultural sites, to which RECAL has been applied, shows that the average metal concentrations of each of the eleven metals is below the maximum metals concentration of the soils prior to application of RECAL II. This comparison is provided in the table in Appendix XVI. Furthermore, Table V in Appendix XIII of the application shows that for the metals which have application rate limits annual applications for 227-125,000 years would be necessary to exceed the metals loading limits.

1107.F.2. waste-handling procedures from entry to final application;

As illustrated in Appendix XI block flow diagram, RECAL II is produced in a neutralization tank by an automated mixing and control system. From the neutralization tank the carbonate slurry is pumped to a clarifier where the carbonate solids settle to the bottom of the clarifier. The carbonate slurry is pumped to an on-line filter press which dewateres and washes the solids. The resulting solid filter cake, which is the RECAL II, has a nominal entrained moisture content in the 50-62 wt% range. The dewatered solids are dropped directly into a tractor trailer and is representatively sampled and tested for the release criteria specifications, shown on the certificate of analysis form in Appendix IX. If the release criteria specifications are met the material is delivered to the farmer as designated by the Louisiana Cooperative Extension Service as described in Section 1107.B.4 of Part II application. If the load fails any of the release criteria testing, the quality control section may also analyze for the additional parameters listed in Appendix X which are requested by the Environmental Regulatory Affairs Group (ERAG). In addition, at any time, if the operations team becomes aware of any upset in operations, the production team leader notifies the quality control team leader, who in turn will trigger a more comprehensive testing protocol specified by the Analytical Applications quality control group or the ERAG.

Loads which fail any of the specifications will either be sent to a cement kiln as a limestone substitute or sent to an approved landfill if the cement kiln specifications are not met.

RECAL II is not a hazardous material and is not regulated either by DOT or RCRA. Ciba provides a Material Safety Data Sheet (MSDS) with the shipping papers for the benefit of the truck drivers and the farmer. Adherence to the handling instructions and common sense on where the material is placed will not result in any emergencies. RECAL II is no more hazardous than any agricultural liming material.

1107.F.6. provisions for vector, dust, litter, and odor control;

This is not applicable to the production or distribution of RECAL II.

1107.F.7. a comprehensive operational plan describing the total operation including, but not limited to, inspection of incoming waste to ensure that only permitted wastes are accepted, equipment operation, personnel involvement, and day-to-day activities;

The above requirements are for a beneficial use facility receiving beneficial-use waste. The RECAL II Beneficial-use Permit Application is for a permit to distribute the RECAL II for farmers to beneficially use the material.

The comprehensive operational plan for distribution of RECAL II by Ciba-Geigy as an agricultural liming agent under the coordination of the Louisiana Cooperative Extension Service is provided in Appendix X in block flow diagram form. Additional narrative explanations are provided in Section F.2 above.

The application rate in lbs/acre is recommended by the Louisiana Cooperative Extension Service after they test the farmers soil for the parameters listed in the "Soil Test Result" report. An example is provided in Appendix VIII. The application rate shown is for agricultural lime. The Cooperative Extension Service has determined that RECAL II has an equivalence factor of 2.5 to 1 compared to agricultural lime. When the Ciba buyer receives this report he uses the RECAL II Loading Rate Calculation Sheet (see example in Appendix XIV) to calculate the corresponding RECAL II loading rate. The Ciba purchasing representative also prepares a RECAL II Distribution Information Sheet and a shipping tally and sends the shipping tally, loading calculation sheet, the distribution information sheet (examples provided in Appendix XIV) and any other pertinent information regarding the site to the Environmental Operations Department Administrative Assistant. The Administrative Assistant prepares the shipping papers, maintains the shipping records, weigh tickets, and provides the shipping papers to the Environmental Operations technicians who produce the RECAL II. The Administrative Assistant also provides a monthly summary of all shipping information to the Analytical Applications group to include in the annual analytical reports on the RECAL program.

The Environmental Operations technicians sample each load when the shipping trailer is full and assign a lot number to the load. The sample is supplied to the Analytical Applications group who tests the RECAL II and determines whether the lot meets specifications. The analytical parameters, specifications, and test frequencies for quality control of the material are provided in Appendix X in the typical chemical characteristic table. Each of the parameters and the values listed in this table are the material

specifications as an agricultural liming agent. These specifications are derived from over 10,000 analyses performed on over 1200 lots of calcium carbonate since 1988. As shown in this table in Appendix X, each lot will be tested for Calcium Carbonate content, Calcium Chloride content, and Solids content. These three parameters are the release criteria specifications. If the lot passes these specifications the Analytical Applications group will prepare a certificate of analysis similar to the form provided in Appendix IX and forward the certification of analysis to the Environmental Operations technicians who schedule the shipment to the farmer. After completion of a shipment checklist the shipping papers are provided to the driver and the driver delivers the load to the farmer. The remaining parameter specifications listed in the chemical characteristics table are RECAL II product specifications which do not have to be tested on each lot, but only on request. These product specifications are based on maximum values (and/or minimum) obtained on the great volume of testing already performed (over 1200 lots). The Analytical Applications group also maintains the records on quantity and shipping location for each load. If the lot fails RECAL II specifications, Environmental Operations is notified. Environmental Operations will then determine if the load meets the specifications for substitutes limestone for the cement kiln. If the cement kiln specs are not met Environmental Operations will ship the load to an approved, permitted landfill if the material cannot be reclaimed.

Annually, the Analytical Applications group will provide a comprehensive analytical summary of the RECAL II program to the Environmental Regulatory Affairs Group (ERAG). The ERAG will include this report in the annual report to LDEQ on the beneficial-use of RECAL II. If the load meets specifications, the EO technician arranges the transportation, schedules the load.

1107.F.8. detailed analysis of waste include, but not limited to, pH, phosphorus, nitrogen, potassium, sodium, calcium, magnesium, sodium adsorption ratio, and total metals (as listed in LAC33:VII.1109.G.3.a.i);

All of the chemical characteristics listed in the table in Appendix X have been analyzed numerous times and reported to LDEQ in annual reports since 1988. These chemical characteristics values as listed in this table have been established as product specifications after years of quality control experience on RECAL I and extensive studies and consultation with LSU and Louisiana Cooperative Extension Service agronomy experts. The original specifications in 1988 were established by measuring each of these parameters on ten lots and using a statistical confidence limit quality control method. The specifications listed in the table in Appendix X are those established after obtaining considerable data from over 1200 lots. These specifications for all practical purposes meet the 99% confidence limit and/or are the maximum/minimum possible values for these parameters. The explanations detailed below on each parameter further verifies the authenticity and quality of the RECAL II to be delivered to the farmers.

RECAL II has the same pH characteristics as agricultural lime and limestone. After about 1200 analyses of RECAL II, the pH of a 50/50 slurry in water showed a range of 9.1-12.7, (very similar to agricultural lime) which is why it

is used to increase soil pH to improve crop yields. Lime 50/50 pH is typically 12.8 and limestone 50/50 pH is typically 9.3-10.2. Also it is not necessary to analyze each lot, because all past analyses show that RECAL II is always an alkaline solid. RECAL II is beneficial to soil which is low in alkalinity because of its alkalinity. For these reasons it is not necessary to require that pH be a release criteria specification for each lot as shown in the table in Appendix X. PH will be analyzed on request.

Sodium has been measured over 1200 times on RECAL II as sodium chloride and has never exceeded 0.30 wt% (dry basis). Enough sodium data is available, so that each load does not have to be analyzed on each load.

Calcium is measured as CaCO_3 (dry basis) and CaCl_2 (dry basis) on each load. These are the most important specifications. The Louisiana Cooperative Extension Service agrees that the specifications of $\geq 65\%$ for CaCO_3 , $\leq 3.0\%$ for CaCl_2 , and $\geq 38.0\%$ Solids based on LSU-Agronomy Department greenhouse studies, show that RECAL II with these characteristics is effective and not detrimental to crops.

The entrained moisture is typically $< 62.0\%$ and does not cause any detrimental effects. A solids content of $\geq 38.0\%$ for RECAL II results in a solid free of liquid and an effective, safe liming agent. No loads are to be shipped with visible, accumulated water. Each load is analyzed for Solids content and inspected using a shipping checklist for visible, accumulated water or leaks.

Calcium Hydroxide was tested on the first ten loads and was determined to be, on a dry basis, 0.1-1.4%. Since calcium hydroxide is also a beneficial liming agent, it is not considered to be a contaminant, therefore testing of each load is not necessary.

Iron Hydroxide was analyzed on the first ten lots and found to range from 1.2-1.6% on a dry basis. Since low levels of Iron such as this are considered beneficial nutrients, analysis of every load for Iron hydroxide is not necessary.

Phosphorus was analyzed on the first ten lots of RECAL II. The typical concentration of CaPO_4 (dibasic) is 0.1-5.4%. Since phosphates are a beneficial agricultural nutrient there is no need to analyze each load for this parameter.

Sulfate was measured as CaSO_4 on the first ten loads. The concentration range was 4.5-6.2%. Subsequent analyses have demonstrated concentrations up to 7.5%. As with the phosphates, sulfates are also a beneficial agricultural nutrient, so analysis of each load is not necessary.

Nitrogen was measured on the first ten loads as total nitrogen. The total nitrogen levels ranged from 80-2400 ppm. Such a small quantity of nitrogen was not considered as a significant nitrogen contribution with respect to agriculture. The nitrogen is believed to be in the form of inert nitrile polymer or carbon/nitrogen polymer which are not mobile or toxic.

Potassium was not measured on RECAL II because, based on our knowledge of the process, it should not be present in high enough levels to be significant to agriculture.

The magnesium concentration was never measured because, based on our knowledge of the process, it should not be high enough to be significant to agriculture.

Of more than 1200 lots tested, none exceeded 3.0 ppm cyanide in the six and one-half years of the program. All loads tested were below 1.0 ppm except for one which was 2.9 ppm. Historically, based on extensive analyses, the risk is so low that it is not necessary to analyze for cyanide.

Of over 1200 loads none exceeded 3900 ppm TOC. These low levels of TOC are believed to be primarily from three innocuous sources (1) nitrile polymers, (2) water treatment polymers, and (3) carbon/nitrogen polymers. No detectable identifiable organics were found by GC/MS analysis except for about 25 ppm alkanes (see letter report in Appendix XV). Such low levels of the simplest of organic compounds and the consistency of over 1200 analyses being below 3900 ppm (typically about 800 ppm), justify not analyzing each load.

Chlorotriazines exceeded 0.5 ppm only 13 times in 1200 lots. Chlorotriazines never exceeded 10 ppm in over 1200 tested lots (only one lot showed 9.8 ppm). Typically chlorotriazines are applied to most farmlands (corn, cane, sorghum) at a rate of about 3 lbs/acre annually. If one 16-ton load went to a farmer who used the standard RECAL II application rate of 2.4 tons/acre for a typical 100 acre site and that load had 10 ppm chlorotriazines the application rate of the triazines over the 100 acre site would be less than 0.046 lbs/acre of triazines for seven of the 100 acres which would be insignificant compared to a 3 lbs/acre used on most farmlands and not be a significant enough quantity to cause any problems to pasture lands. For these reasons, and the probability that the source of the extremely low and rare chlorotriazines in the process is probably due to airborne contamination of one of the feeds to the process or analytical error, chlorotriazines need not be tested or used a release criteria on each lot.

Cyanate was measured on the first ten lots and found to range from 0.08-0.13 ppm which was at or close to the method detection limit. No further testing was deemed necessary.

Cyanogen Chloride was measured on the first ten lots and never detected (<0.4 ppm), so that parameter was not tested again.

Sodium Thiosulfate is added to the process to scavenge chlorine residuals and may be found at the 100 ppm level. The addition point will be changed to the clearwell of the clarifier which will reduce the chlorine losses to the atmosphere and increase the excess thiosulfate from less than 30 ppm to less than 150 ppm. According to Dr. Donald Robinson of the LSU Agronomy Department, who performed a study on sodium thiosulfate addition in greenhouse studies, both ammonium thiosulfate and potassium thiosulfate are widely used as liquid fertilizers and are applied to soil or directly applied

to plant foliage. There is no agronomic reason to expect that minute amounts of sodium thiosulfate in RECAL II to adversely affect plant growth when applied to the soil. For these reasons sodium thiosulfate will not be analyzed on each lot. This same study also demonstrated that Calcium Chloride levels in the RECAL II could be as high as 6.0 wt%, on a dry basis, without causing detrimental effects to crops and the Total Solids content of the RECAL II could be as low as 38.0 wt%. See copy of this report in Appendix VII.

Free Chlorine was measured on the first ten lots and found to be not detectable (<0.1 ppm). With excess sodium thiosulfate there is no reason to analyze for free chlorine.

The PCB concentration was analyzed on the RECAL II in 1988 by a contract lab. There were no PCBs detected and none are expected, therefore analysis for PCBs is not done. A copy of the letter report on this testing is provided in Appendix XV.

The Sodium Absorption Ratio of RECAL II was never considered applicable as an important parameter by the Louisiana Cooperative Extension Service, and was never determined.

Six TCLP organics analyses were performed with no failures. Based on the knowledge of the inlet streams, the treatment process, and the volumes employed, RECAL II cannot conceivably fail the TCLP organics test as demonstrated with these analyses and should not be tested any longer.

One hundred-two TCLP-RCRA metals were determined with no failures. No further TCLP-RCRA metals analyses is justified.

The parameters, specifications, and test frequencies outlined in Appendix X are more than adequate to ensure that good quality liming agent is delivered to the farmers as demonstrated in the six and one-half year history of authorized distribution of RECAL II. Since LDEQ authorized distribution of RECAL II in 1988 through June 30, 1995 Ciba has made 897 shipments to farmers, involving over 8700 quality control parameters.

Additionally, the LSU Agronomy Lab through the auspices of the Louisiana Cooperative Extension Service has performed greenhouse studies on RECAL II in 1986, 1988, and 1995 using material which meets the specifications shown in Appendix X with good results.

Based on the history of testing, enough TCLP metals, TCLP organics, Total Cd, Ni, Zn, Pb and Cu analyses have been performed as well as sodium chloride, cyanide, triazines, and TOCs to justify analyzing these only upon notification from Environmental Operations of any unusual condition.

- 1107.F.9. soil classification, cation-exchange capacity, organic matter, content in soil, soil pH, nitrogen, phosphorus, metals (as listed in LAC33:VII:1109.G.3.a.i), salts, sodium, calcium, magnesium, sodium adsorption ratio, and PCB concentrations of the treatment zone;

The soil classification, cation exchange capacity, organic matter in the soil, soil pH, sodium, calcium, magnesium, potassium, phosphorus, and the recommended liming agent treatment rate are provided by the LSU Agronomy Lab Report of the testing performed on the farmer's soil from samples taken by the Louisiana Cooperative Extension Service. An example of such a report is provided in Appendix VII.

The sodium adsorption ratio is not considered necessary by the Louisiana Cooperative Extension Service, so it is not provided.

As shown in each of the RECAL II annual reports submitted to LDEQ-Solid Waste Division since 1990, there is no longer any need to test either the farmers soil before or after application of RECAL II for Cd, Ni, Zn, Pb or Cu. The very large data base of Cd, Ni, Zn, Pb and Cu analyses on 102 shipments of RECAL II has resulted in a very accurate determination of these metals in each load and the metal loading rate without any further analyses. The concentration of these metals in each load is well known using this data base. Using the total quantity of RECAL II delivered to each site and the total acreage at the site treated by the farmer, Ciba has determined very accurately the loading rate of each of these metals to each site to which RECAL II has been applied. Ciba has reported these loading rates in each of the annual reports issued to LDEQ on RECAL II since 1990.

There is no need to analyze the farmers' soil before or after application of RECAL II for the metals listed above or any heavy metals. Since 1988 RECAL II has been distributed to 43 farmers' sites (no repeat locations) under LDEQ and Louisiana Department of Agriculture authorization and Louisiana Cooperative Extension Service coordination. Each of these annual reports shows that, even if RECAL II were applied every year for hundreds to thousands of years the LDEQ-SWD metals loading limits would not be exceeded. (See copy of Tables IV and V from the most recently submitted RECAL II annual report included in Appendix XIII which lists the actual RECAL II loading rate and the metal of concern loading rate for five sites compared to the lifetime limit.) In addition, Table V in Appendix XIII shows the hundreds or thousands of years of yearly applications necessary to exceed the lifetime loading rate limit. Further, discussions with the EBR Parish Cooperative Extension Service County agent confirms that typical liming frequencies in this area with agricultural lime is every 3 years. With RECAL II liming will be necessary only every 4-5 years.

Since it is truly impossible to exceed the LDEQ metals loading limits, and extensive data has been accumulated to demonstrate this fact, metals analysis of the RECAL II, metals analysis before application, and metals analysis after application are not necessary.

1107.F.10. annual application rate (dry-tons per acre) and weekly hydraulic loading (inches per acre);

The application rate in lbs/acre is recommended by the Louisiana Cooperative Extension Service after they test the farmers soil for the parameters listed in the "Soil Test Result" report. An example is provided in Appendix VIII. This application rate is for agricultural lime. The Cooperative

Extension Service has determined that RECAL II has an equivalence factor of 2.4 to 1 compared to agricultural lime. When the Ciba purchasing representative receives this report he uses the RECAL II Loading Rate Calculation Sheet (see example in Appendix XIV) to calculate the corresponding RECAL II loading rate. The Ciba purchasing representative prepares a shipping tally (see example in Appendix XIV) and sends the shipping tally, loading calculation sheet, and any other pertinent information regarding the site to the Environmental Operations Department Administrative Assistant. The Ciba purchasing representative, who communicates with the Cooperative Extension Service, also sends copies of all information associated with each site to the Environmental Regulatory Affairs Group (ERAG). The ERAG uses this information in making the annual reports to LDEQ.

The actual application rate (on an as is basis) is later confirmed and documented by the Environmental Regulatory Affairs Group using the actual shipping record to determine the actual application rate as illustrated in Table IV of Appendix XIII which was excerpted from the most recent RECAL II Annual Report to LDEQ.

1107.F.11. an evaluation of the potential for nitrogen to enter the groundwater; and

The potential for nitrogen to enter the groundwater is very remote since the level of nitrogen in the RECAL II is very low. The potential for nitrogen to enter the groundwater from RECAL II would be substantially lower than that of conventional organic and inorganic fertilizers. In addition, the low levels of nitrogen are believed to be in the immobile form of nitrile polymer-like compounds or carbon/nitrogen polymer.

1107.F.12. if the facility is to be used for food-chain cropland, the following information is required:

1107.F.12.a. a description of the pathogen-reduction method for domestic septage, sewage sludges, and other sludges subject to pathogen production;

Pathogens are not applicable to RECAL II.

1107.F.12.b. crops to be grown and the dates for planting:

The farmer informs the Cooperative Extension Service of the type of crops to be grown prior to the Extension Service determining the pH of the farmers soil. The crop type is normally reported to Ciba-Geigy by the Cooperative Extension Service in the Soil Test Results Report. This report is included by Ciba in the Annual Report on RECAL II submitted to LDEQ-SWD. Neither Ciba nor the Cooperative Extension Service can determine the dates the farmers will plant their crops, so the date that the crop is planted is not applicable to this permit.

1107.F.12.c. PCB concentrations in waste;

PCB concentration determination and a GC/MS analysis were performed in 1988 as part of the original LDEQ authorization to distribute RECAL II. No

PCB was found in the RECAL II sample which was identified as calcium carbonate solids in that letter report. A copy of the letter report from Ciba to LDEQ is included in Appendix XV.

In addition, based on our knowledge of the process there is no reason to believe that there ever could be any PCB present in the RECAL II.

1107.F.12.d. annual application rates of cadmium and PCB application; and

1107.F.12.e. cumulative application of cadmium and PCBs.

Since PCB is not present there is no application of PCB to the soil when applying RECAL II. The loading rate of cadmium to the sites to which RECAL II was applied ranged from 0.001-0.039 lb/acre for the RECAL II sites. The average loading rate was 0.009 lb/acre. Liming of these sites will not be necessary again for about four years according to the Cooperative Extension Service. If RECAL II were applied every four years the number of years required to exceed the LDEQ maximum rates would be over 11,000 years. Such a loading rate is insignificant and does not warrant monitoring.

The other metals have similar comparisons when comparing the actual metals loading rates to the maximum rates allowed.

1107.F.13. If the facility is to be used for non-food-chain purposes the following information is required:

1107.F.13.a. a description of the pathogen-reduction method in septage, domestic sewage sludges, and other sludges subject to pathogen production; and

Pathogens are not applicable to RECAL II.

1107.F.13.b. a description of control of public and livestock access.

RECAL II is no more hazardous than agriculture grade limestone. Nevertheless, Ciba-Geigy provides the farmer with material handling instructions and a Material Safety Data Sheet (MSDS). In addition, Ciba-Geigy and the Louisiana Cooperative Extension Service caution the farmers who receive RECAL II (and any other liming agent) to distribute the material immediately or as soon as possible to minimize the possible access by the public or livestock. Additionally, Ciba-Geigy and the Cooperative Extension Service recommend to the farmers that they cover the material or cordon off the area where the material is accumulated prior to and during distribution. Ciba-Geigy provides two spreaders to the farmers to ensure rapid and effective spreading.

1107.G. Facility Closure. The facility must provide the date of final closure.

Closure does not apply to the Beneficial-use Permit Application for RECAL II.

Non-Conformity

1109.E. *Address this section or submit an exemption request in accordance with LAC 33:VII.307.*

1109.E. Facility Subsurface Hydrology. The following standard applies to subsurface hydrology for beneficial-use facilities: The facilities shall be located in a hydrologic section where the historic high water table is at a minimum of a three-foot depth below the zone of incorporation, or the water table at the facility shall be controlled to a minimum of a three-foot depth below this zone.

Non-Conformity Response:

1109.E. The requirement for subsurface high water table to be at a minimum of three-foot depth below the zone of incorporation is not applicable to a material such as RECAL II because it places an unreasonable technological burden on the many farmers who would like to use the material as a soil liming agent. Clba has submitted a request for an exemption from LAC 33:VII.1109.E. in accordance with LAC 33:VII.307 on May 28, 1996. A copy of that request is provided in Appendix XVII of this application.

PART III

BENEFICIAL-USE

PERMIT APPLICATION

FOR

RECAL II

PART III

"IT DECISION" QUESTIONS

SUPPLEMENTARY INFORMATION

CIBA-GEIGY CORPORATION

ST. GABRIEL PLANT

ST. GABRIEL, LOUISIANA

SUBMISSION

AUGUST 23, 1996

LAC 33.523 Part III - Additional Supplementary Information

Non-Conformity

523.A.-E. Address these sections.

Non-Conformity Response

Part III (also known as the "IT Decision" questions) was not included in the original permit application submitted because: (1) It was not indicated by the LDEQ staff as required in the application in our meeting of 12/11/96 discussing the format; (2) Section 523 states "The following supplementary information is required for all solid waste processing and disposal facilities". This permit application is not for a solid waste processing or disposal facility. Nevertheless, we address these sections as requested below.

The following supplementary information is required for all solid waste processing and disposal facilities. All responses and exhibits must be identified in the following sequence to facilitate the evaluation:

523.A. *A discussion demonstrating that the potential and real adverse environmental effects of the facility have been avoided to the maximum extent possible;*

This requirement is not applicable to RECAL II because this is supplementary information required for solid waste processing and disposal facilities. RECAL II use by farmers is not solid waste processing or disposal. The use of RECAL II by farmers as a substitute agricultural limestone is a well recognized safe and effective liming agent practice which has been registered with the Louisiana Department of Agriculture and Forestry since October 11, 1988. Reports on analytical studies, agronomy studies, green-house studies, field studies, crop metal uptake studies, crop yields, metal dosage rates and thoroughly monitored use at over forty-nine (49) area farm sites through April, 1996 in the parishes of East Baton Rouge, West Baton Rouge, Iberville, Ascension, East Feliciana, Pointe Coupe, and Livingston have been submitted to LDEQ-Solid Waste Division on May 31, 1988; November 30, 1990; October 21, 1993; October 28, 1993; October 26, 1993; December 8, 1995; and in this permit application, originally submitted on February 2, 1996 and the final reformatted version submitted on August 23, 1996.

Ciba-Geigy has distributed 1147 loads of RECAL II to forty-nine (49) area farmers' sites through April, 1996 under LDEQ-SWD authorization issued on August 31, 1988 and another issued on March 15, 1991. The distribution has been coordinated by the Louisiana Cooperative Extension Service with approvals from the

Louisiana Department of Agriculture and letters of no objection from the LDEQ-Water Resources Division.

The information and data submitted to LDEQ since 1986 on the RECAL II program during the authorization process has been used by the LDEQ as prototype information to develop the LDEQ-Solid Waste Regulations on Beneficial-Use Permit applications.

In conclusion, not only has all the data collected on RECAL II supported the demonstration that RECAL II has no adverse environmental impact as an agricultural liming agent, but there have been no reports of adverse environmental impact incidents in the eight years the material has been in use as a liming agent.

523.B.

A cost-benefit analysis demonstrating that the social and economic benefits of the facility outweigh the environmental-impact costs.

As demonstrated in 33.523.A., there are no adverse environmental impact costs in the beneficial use of RECAL II. The benefits of using RECAL II as a liming agent to local farmers are as follows:

- 1) Since 1988, 20,000 tons of high quality, usable calcium carbonate was not sent to landfill resulting in more effective use of local landfills for true wastes.
- 2) Since 1988, forty-nine (49) farmers have saved \$560,000 in liming agent costs.
- 3) Green-house studies, farmers, and the Louisiana Cooperative Extension Service have supported the benefits of RECAL II use demonstrating that crop production is generally enhanced from +3 to +30% by the use of RECAL II.
- 4) Disposal costs of about \$3MM have been redirected to distribution of RECAL II under the conditions imposed by the conditional authorization. The community and not a disposal firm have benefited from distribution costs. Distribution costs have almost equaled the disposal cost savings.

523.C.

A discussion and description of possible alternative projects which would offer more protection to the environment without curtailing the non-environmental benefits.

There are no possible alternative projects which would offer more protection to the environment and benefit the farmers simultaneously. There are no economic alternatives to producing RECAL II. Ciba is continually improving its source reduction activities by improving the market and internal use for 10%

Hydrochloric Acid by-product so that lesser quantities of commercial lime are needed for neutralization and less calcium carbonate is produced. Nevertheless, elimination of the calcium carbonate production is not a foreseeable alternative at this time.

523.D. *A discussion of the possible alternative facilities which would offer more protection to the environment without unduly curtailing non-environmental benefits.*

This is not applicable to RECAL II because the permit application is not for a facility. It is for the use of RECAL II as a liming agent.

523.E. *A discussion and description of the mitigating measure which would offer more protection to the environment than the facility, as proposed, without unduly curtailing non-environmental benefits.*

This application is not for a beneficial use facility so there are no mitigating measures which would offer more protection to the environment than the facility (applied for), as proposed, without unduly curtailing non-environmental benefits.

There are no mitigating measures which would offer more protection to the environment in the use of RECAL II as a liming agent because there is no adverse environmental impact. After eight years of distribution under special LDEQ authorization, no adverse environmental impacts have been identified. Experience with the production use, and the quality control system employed, warrant no additional mitigating measures.

APPENDIX VIII

METHOD OF HANDLING

RECAL II

Distribution Agreement must be signed before delivery.

HANDLING

1. Wear the following when handling Recal II.
 - goggles
 - rubber gloves
 - rubber boots
 - trousers and long sleeve shirts
2. Wash with large amounts of water on any body part exposed to Recal II.
3. Read Material Safety Data Sheet before application.
4. Recal II should be distributed as soon as possible. Cover undistributed Recal II with plastic to minimize exposure to rain.
5. Remove any plastic, including delivery trailer liner, before distributing Recal II.

DISTRIBUTION

6. Do not exceed four tons per acre.
7. The Recal II spreader will be made available by Ciba-Geigy.
8. Farmer will be responsible for spreader maintenance.
9. Transportation of the spreader will be the responsibility of the farmer who used it last.
10. Spreader requires use of a front-end loader.

MISCELLANEOUS

11. The following information is to be reported to the Extension Services regarding the treated area.
- Number of acres.
 - Crops to be grown.

CIBA-GEIGY
PURCHASING REPRESENTATIVE

FARMER

Signature and Date

Signature and Date

CIBA-GEIGY

St. Gabriel Plant
CIBA-GEIGY Corporation
P.O. Box 11
St. Gabriel, Louisiana 70776
Telephone 504-642-1100

DISTRIBUTION AGREEMENT

RECITAL II

Agreement between Ciba-Geigy Corporation ("Seller") and
Douglas Pine ("Buyer").

1. Seller agrees to sell and transfer to Buyer Recal II, (the "Product"), for a period from Nov 1, 1994 through Nov 1, 1995. Either party shall have the right to terminate this Agreement upon 30 days written notice.

2. Buyer agrees that it will use the Product only as a soil amendment agent in Buyer's agricultural business and Buyer will not resell the product.

3. Buyer shall pay to Seller \$1.00 per truckload to defray the cost of transportation incurred by Seller in delivering the Product to Buyer. Payment shall be due within thirty (30) days of the date of the invoice.

4. SELLER MAKES NO EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY. In no case shall Seller be liable for consequential, special or indirect damages resulting from the use or handling of the Product.

5. Buyer agrees to comply with all federal, state and local laws and regulations in the use and handling of the Product, including disposal of any containers or excess Product.

6. Title shall pass from Seller to Buyer upon delivery of the Product to Buyer.

7. This Agreement may not be assigned by either party except with the prior written consent of the other party.

8. No modification of the Agreement shall be effective unless in writing and signed by the parties hereto.

9. Any question under this Agreement shall be interpreted in accordance with the laws of the State of Louisiana as if this Agreement were made and to be performed in that state.

10. Before delivery, Buyer must read and sign a Method of Handling Sheet. Buyer agrees to handle and use the Product in accordance with each Method of Handling Sheet.

Ciba-Geigy Corporation

Buyer

John Bume 11/23/94
Signature and Date

Douglas Pine
Signature and Date

CIBA-GEIGY

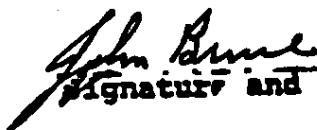
St. Gabriel Plant
CIBA-GEIGY Corporation
P.O. Box 11
St. Gabriel, Louisiana 70776
Telephone 804-642-1100

MISCELLANEOUS

12. Soil samples will be taken before distribution and semi-annually thereafter by the Cooperative Extension Services.
13. The following analysis are required.
 - soil profile (30 in)
 - pH
 - Cation Exchange Capacity (CEC)
 - Heavy metals.
14. A check strip (non-treated area) must be flagged.
15. The following information is to be reported to the Extension Services regarding the treated area.
 - Number of acres.
 - Crops to be grown.
 - Yield data of previous crop.
 - Yield data of current crop.
 - Row crop - at harvest.
 - Pasture - measure using cages.
 - Amount and nature of any other chemicals used in previous and current year.

Ciba-Geigy

Buyer


Signature and Date


Signature and Date

CIBA-GEIGY

MATERIAL SAFETY DATA SHEET

CIBA-GEIGY Corporation
Agricultural Division
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
CIBA-GEIGY: 1-800-888-8372
1-800-334-9481
CHEMTREC: 1-800-424-8300

I. MATERIAL IDENTIFICATION

Product Name: RECAL II

CAS #: 1317-65-3
(Calcium Carbonate)

Active Ingredient (%): 65-80%
Chemical Name: Calcium Carbonate
Chemical Class: Inorganic Mineral
EPA Signal Word: Not Applicable

II. REGULATORY INFORMATION

SARA Title III Classification
Not applicable.

Proposition 65 (CA Only)
Not listed.

Reportable Quantity (RQ)
None.

RCRA Classification
Not applicable.

DOT Classification
Not applicable; no label or placard required.

B/L Freight Classification
Compound, Soil-Conditioning, N.O.S.

NFPA Hazard Ratings	
Health	1
Flammability	0
Reactivity	0
0 Least 1 Slight 2 Moderate 3 High 4 Severe	

III. HAZARDOUS INGREDIENTS

Material		OSHA PEL	ACGIH TLV	NTP/IARC/OSHA Carcinogen
Calcium Carbonate	(65-80%)	15 mg/m ³ (total dust)	10 mg/m ³	NO
Calcium Sulfate	(1-25%)	15 mg/m ³ (total dust)	10 mg/m ³	NO
Calcium Hydroxide	(1-5%)	5 mg/m ³	5 mg/m ³	NO

IV. FIRST AID PROCEDURES

If poisoning is suspected, immediately contact a physician, the nearest hospital, or the nearest Poison Control Center. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

- Ingestion:** If victim is fully conscious, immediately give 1 or 2 glasses of water to drink and induce vomiting. Never give anything by mouth to an unconscious person.
- Eye Contact:** Immediately rinse eyes with a large amount of running water. Hold eyelids apart to rinse the entire surface of the eye and lids. Do not apply any medicating agents except on the advice of a physician.
- Skin Contact:** Wash with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except on the advice of a physician. Remove contaminated clothing and wash before reuse.
- Inhalation:** Move victim from contaminated area to fresh air. Apply artificial respiration if necessary.

Notes to Physician

There is no specific antidote if Recal II is ingested. If a large amount has been ingested and emesis has been inadequate, lavage stomach. Five (5) mg/kg of activated charcoal suspension (50 g/400 ml water) can be given to absorb the remaining toxicant.

Medical Conditions Likely to be Aggravated by Exposure

None known.

V. HEALTH HAZARD INFORMATION

Symptoms of Acute Exposure

Prolonged or repeated skin contact may cause drying of the skin.

Acute Toxicity/Irritation Studies

Not available.

Chronic Toxicity Studies

Not available.

Toxicity of Other Components

Calcium hydroxide and calcium sulfate, in powder form, may irritate skin, eyes, and mucous membranes.

VI. PERSONAL PROTECTION AND PRECAUTIONS

- Ingestion:** Store the material in a well-ventilated, secure area out of the reach of children and domestic animals. Do not store food,

beverages, or tobacco products in the storage area. Prevent eating, drinking, tobacco usage, and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

Eye Contact: To avoid eye contact, wear chemical safety glasses with side shield or chemical goggles.

Skin Contact: To avoid skin contact, wear items such as impermeable gauntlet-type gloves, rubber boots, long-sleeved shirt, long pants, and hat. Protective cream such as West's No. 411 may be applied to skin.

Inhalation: To avoid breathing dust, use such items as a lightweight filter mask.

VII. PHYSICAL HAZARD INFORMATION

Fire and Explosion

Flash Point (Test Method): None.
Flammable Limits (% in Air): Not applicable.
Autoignition Temperature: Not applicable.

Reactivity

Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: Strong acids.
Hazardous Decomposition Products: SO_x (from calcium sulfate).

Physical Properties

Appearance: Tan to gray powder-cake.
Odor: Mild odor.
Melting Point: Not available.
Solubility in H₂O: 0.2 g/100 ml.
Boiling Point: Not applicable.
Specific Gravity (H₂O = 1): Not available.
Vapor Pressure: Not available.
pH: Not available.
Evaporation Rate: Not available.

Unusual Fire, Explosion and Reactivity Hazards

None known.

VIII. ENVIRONMENTAL PROTECTION

In Case of Spill or Leak

Wear chemical safety glasses with side shield or chemical goggles, impermeable gauntlet-type gloves, rubber boots, long-sleeved shirt, long pants, hat, and

lightweight filter mask. Protective cream such as West's No. 411 may be applied to skin. For small spills, sweep up and place in an approved chemical waste container. Wash the spill area with water containing a strong detergent, absorb with pet litter or other absorbent material, sweep up and place in a chemical waste container. Seal container and dispose of in an approved manner. Rinse the spill area with water to remove any residue. Do not allow wash or rinse water to contaminate water supplies.

In Case of Fire

Use dry chemical, foam, or CO₂ extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes, or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated.

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Questions concerning the safe handling of Recal II should be referred to:

CIBA-GEIGY Corporation
Environmental Safety & Compliance
(919) 292-7100

Issued Date: 9/29/88
Revised Date: 6/6/89

Supersedes: 1/3/89

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.



Louisiana State University

Agricultural Center

Division of Plant Science
Louisiana Cooperative Extension Service

Department of Agronomy
Louisiana Agricultural Experiment Station

128 Madison B. Sturge Hall
Baton Rouge, LA 70803
(504) 388-1261

Soil Test Results

Date Sampled: / / Date Received: 08/16/94 Date Completed: 09/01/94

Douglas Pirie
25543 La. Hwy 1032
Dennam Springs LA 70726 Parish: Livingston

Lab Number: 11129.0 Sample Identification: P

Soil Area: Upland Texture: silt loam

SOIL TEST RESULTS AND INTERPRETATIONS:

	Results	Interpretation
pH	5.2	low
Phosphorus, ppm	101	very high
Sodium, ppm	18	very low
Potassium, ppm	48	very low
Magnesium, ppm	48	very low
Calcium, ppm	878	low
Bases, meq/100g	5.0	
Organic Matter, %	0.00	Optional Test - Not Applicable

Expected pH after adding 1 ton/acre lime = 6.1
Expected pH after adding 2 tons/acre lime = 6.6

RECOMMENDATIONS:

Crop	Irrigate?	Nutrients Needed, lb/Acre		
		Nitrogen	Phosphate	Potash
Legume	no			
sum. an. legume		0	0	100
c. s. legume		0	0	100

CONTACT YOUR COUNTY AGENT (TELEPHONE 504/686-3020) IF YOU HAVE ANY QUESTIONS ABOUT THIS REPORT. THE AGENT ALSO RECEIVES A COPY OF THIS REPORT AND MAY CONTACT YOU TO DISCUSS IT.
Enclosure: P 270

APPENDIX IX

CERTIFICATE OF ANALYSIS FOR RECAL II

Code No. _____

Bill of Landing No. _____

Analysis	Specification	Results
Calcium Carbonate Equivalent (dry basis, wt. %)	≥ 65.0	_____
Calcium Chloride (dry basis, wt.%)	≤ 3.0	_____
Solids (as is, wt. %)	≥ 38.0	_____

Approved By: _____
Supervisor, A, P & Q

Date

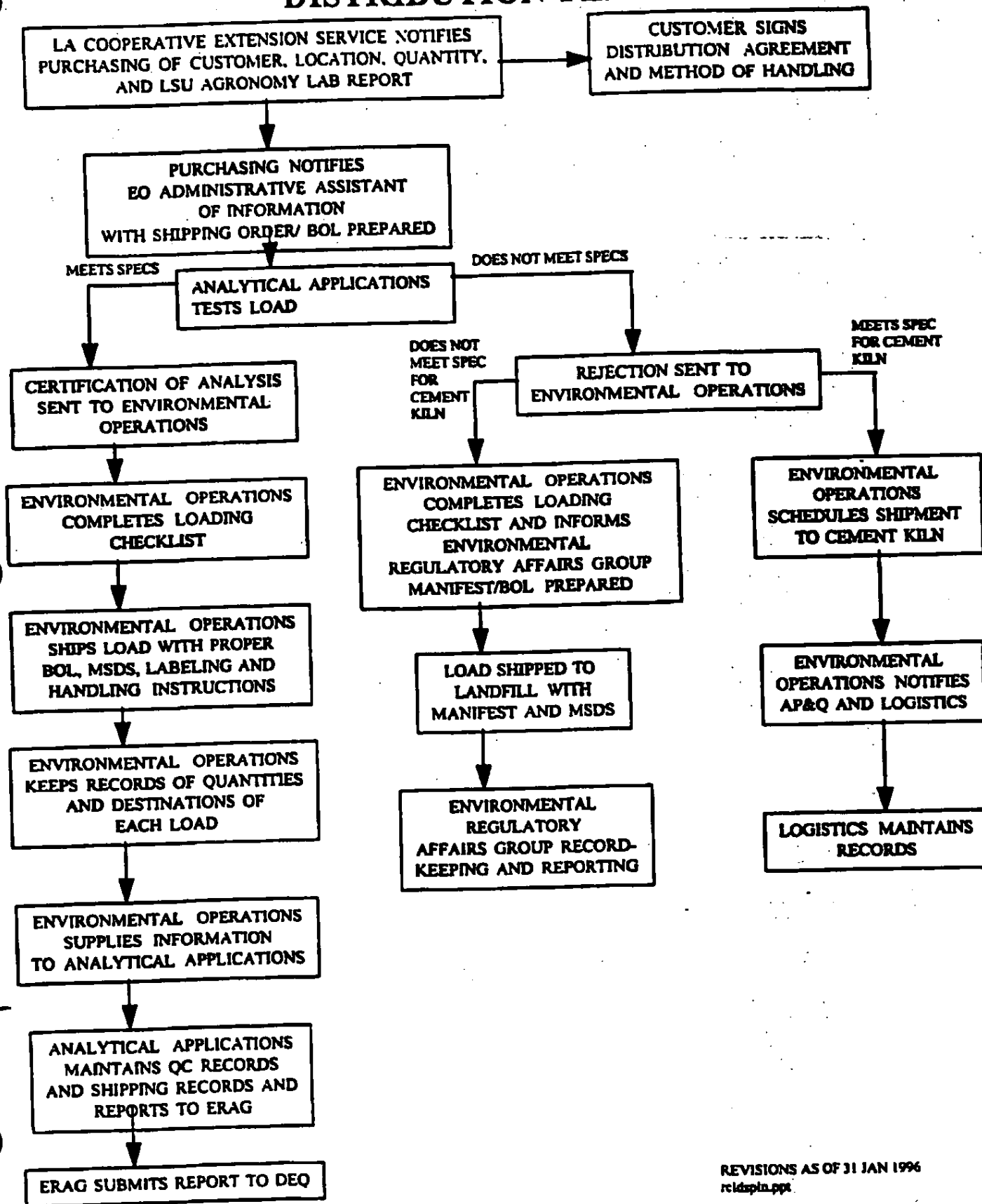
Logistics

Date

CIBA-GEIGY Corporation
St. Gabriel, Louisiana
Rev.: Jan-96
recalcr.doc

APPENDIX X

RECAL II OPERATIONAL DISTRIBUTION PLAN



RECAL II TYPICAL CHEMICAL CHARACTERISTICS

* CALCIUM CARBONATE (DRY BASIS, WT %)	≥65.0
* CALCIUM CHLORIDE (DRY BASIS, WT %)	≤3.0
* SOLIDS CONTENT (AS IS WT %)	≥38.0
** CALCIUM SULFATE (DRY BASIS, WT %)	<25.0
** CALCIUM HYDROGEN PHOSPHATE (DRY BASIS, WT %)	<10.0
** CALCIUM HYDROXIDE (DRY BASIS, WT %)	<5.0
** IRON HYDROXIDE (DRY BASIS, WT %)	<2.0
** SODIUM CHLORIDE (DRY BASIS, WT %)	<0.3
** KJELDAHL NITROGEN (AS IS, PPM)	<2500
** TOC (AS IS, PPM)	<3900
** pH (50/50 in water)	9.1-12.7
** CYANIDE (AS IS, PPM)	<3.0
** TOTAL TRIAZINES (AS IS, PPM)	<10.0
** CYANATE (AS IS, PPM)	<10.0
** CYANOGEN CHLORIDE (AS IS, PPM)	<1.0
** FREE CHLORINE (AS IS, PPM)	<6.0
** SODIUM THIOSULFATE (AS IS, PPM)	≤150
** TCLP (FULL) (AS IS, MG/L)	PASSES

* Test frequency will be each load with values shown as release criteria.

** Test frequency will be on request because considerable data shows that analysis of this constituent is unnecessary

RECAL II TYPICAL CHEMICAL CHARACTERISTICS (CONTINUED)

¹AVERAGE AND MAX CONCENTRATION OF SW REGULATED
METALS AND CIBA CEILING VALUES OF OTHER METALS
IN RECAL II TO EACH SITE (SINCE APRIL, 1991)

	<u>AVERAGE</u>	<u>MAX</u>
** LEAD (AS IS BASIS, PPM)	1.4	<3.0
**COPPER (AS IS BASIS, PPM)	8.2	<62.0
**CADMIUM (AS IS BASIS, PPM)	1.2	<4.8
**NICKEL (AS IS BASIS, PPM)	18.6	<45.0
**ZINC (AS IS BASIS, PPM)	100.1	<252.0
		<u>CIBA ² CEILING</u>
		<u>VALUE</u>
**ARSENIC (AS IS BASIS, PPM)	-	<31.0
**BARIUM (AS IS BASIS, PPM)	-	<290.0
**CHROMIUM (TOTAL, AS IS BASIS, PPM)	-	<90.0
**CHROMIUM (HEXAVALENT, AS IS BASIS, PPM)-		<1.0
**MERCURY (AS IS BASIS, PPM)	-	0.25
**SELENIUM (AS IS BASIS, PPM)	-	0.5
**SILVER (AS IS BASIS, PPM)	-	2.5

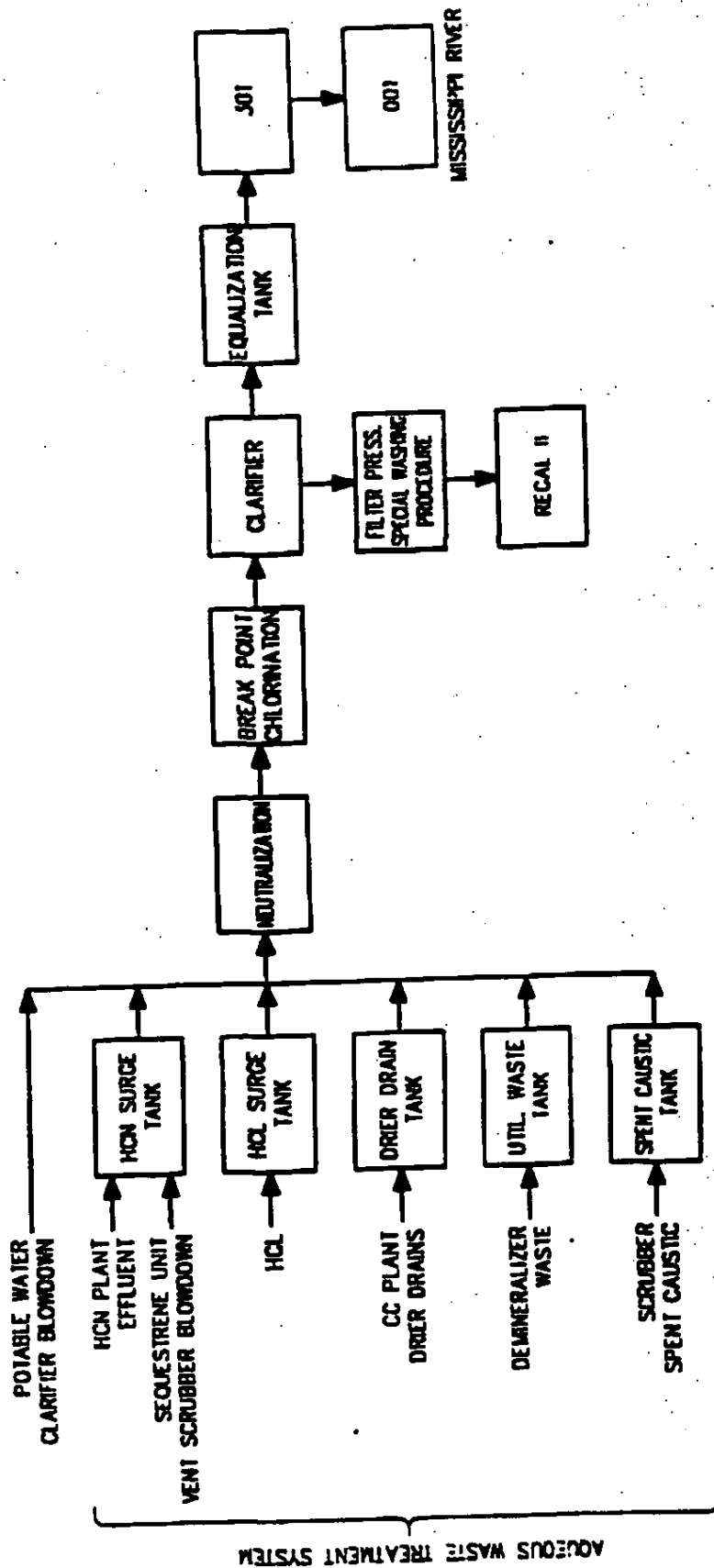
¹ About 100 loads analyzed since 1989 for Pb, Cu, Cd, Ni, Zn.

** Test frequency will be on request because of considerable amount of data already obtained.

² These ceiling values were initially established in 1/89 as target values after analyzing ten lots. Testing was continued on every 15th load until 4/90 resulting in 11 more lots tested for these metals. The values shown in this table are updated ceiling values based on the additional data. These values still remain as target values. none have been exceeded. For explanation of hexavalent chromium analysis see report in Appendix XI.

APPENDIX XI

AWT PROCESS



Waste Streams

The Aqueous Waste Treatment (AWT) area is located in the effluent treatment (E.T.) block at the St. Gabriel plant. AWT is a National Pollutant Discharge Elimination System (NPDES) regulated facility.

The AWT unit is designed to neutralize waste streams from three production areas in the plant, the hydrogen cyanide (HCN)/Sequestrene unit, the cyanuric chloride (CC) unit, and the Utilities area.

The effluent stream from the HCN unit and Sequestrene unit is pumped into the South HCN effluent storage tank, 2431-F. The stream typically contains less than 30 ppm of HCN and less than 1200 ppm of ammonia with the balance being water. This aqueous stream consists of combined wastewaters from the HCN production area. The Sequestrene unit vent scrubber blowdown consists of dilute sulfuric acid and ammonium sulfate pumped to 2431-F at about 10 gpm.

There are three streams that come from the CC area. The largest stream from CC is the dilute HCl which is generated in the production of CC. This material is sent directly from the CC area to the acid tank in E.T., 4603-F. The spent caustic from the CC area vent scrubber is transferred from the scrubber to 2436-F, the spent caustic tank. The dryer drains from CC are collected in the CC area in 2424-A and sampled before this material is sent directly to the AWT neutralizer.

The demineralizer regeneration waste is collected in 2012-F/Fa and pumped to AWT from Utilities. The potable water clarifier blowdown from Utilities is also pumped directly from Utilities.

Process Description

Acid Neutralization - The neutralization reactions take place in 2401-D, the neutralizer. At the inlet header of the neutralizer, there are up to seven streams that are added to be neutralized. Dilute hydrochloric acid (10%) is a stream generated by the CC unit and sent to 4603-F, the acid tank in the E.T. area. Dilute HCl is typically added to the neutralizer 180 to 220 gallons per minute. Spent caustic solution from the CC area is added to assist in the acid neutralization at 10 to 15 gallons per minute. The balance of the acid is neutralized with calcium hydroxide (slaked lime) to form calcium chloride and water. Calcium oxide is purchased from an outside vendor and slaked on site. The process is computer controlled with a series of interlocks to ensure proper operation.

In the HCN effluent there is some diluted sulfuric acid which is neutralized with the calcium hydroxide to form calcium sulfate (gypsum).

Cyanide Destruction - The HCN concentration is normally 30 ppm or less in the HCN vent stream. HCN is destroyed in the presence of excess chlorine either as free

chlorine or calcium hypochlorite to form intermediate calcium cyanate and then evolve nitrogen and form calcium bi-carbonate, calcium chloride, and water.

Ammonia Destruction by Breakpoint Chlorination - Ammonia destruction occurs by calcium hypochlorite oxidation to nitrogen and calcium chloride.

Process Control of RECAL II

Table I summarizes the process control of AWT. The Aqueous Waste Treatment (AWT) area is located in the effluent treatment (E.T.) block at the St. Gabriel plant. AWT is a National Pollutant Discharge Elimination System (NPDES) regulated facility.

The Aqueous Waste Treatment (AWT) unit is designed to neutralize waste streams from three production areas in the plant: the hydrogen cyanide (HCN)/Sequestrene unit, the cyanuric chloride (CC) unit, and the Utilities area. RECAL II is the calcium carbonate solids that is a result of this neutralization.

The streams feeding the AWT unit are: 1) the HCN effluent, 2) spent caustic from CC, 3) 10% HCl from CC, 4) dryer drains from CC, 5) water clarifier blowdown from utilities, 6) demineralized blowdown from utilities, and 7) Sequestrene unit vent scrubber blowdown.

Up-Stream Controls

HCN Effluent and Sequestrene Vent Scrubber Blowdown - The HCN effluent stream which is an accumulation of several streams in the HCN unit are combined in the south HCN tank, 2431-F. The capacity of this tank is 250,000 gallons. Typically, the tank level is maintained to dampen any concentration swings entering the tank, so the process sees a constant feed concentration. This tank is sampled and analyzed six times a day (once every four hours) for cyanide (CN) and ammonia (NH₃) by ET personnel area to ensure the tank material remains in a manageable range. The normal ranges of these constituents are less than 30 ppm HCN and less than 1200 ppm NH₃. In addition to the process control system used to control the process chemistry, the feed rates can be manually reduced to ensure complete neutralization.

From the HCN unit, the sources of the effluent entering the south HCN tank come from the 1) ammonia recovery system 2) HCN unit recovery, 3) HCN unit sumps, and 4) the Sequestrene unit acid scrubber.

The effluent from the ammonia recovery system is sampled once every 12 hours. The steam is adjusted to reduce the ammonia concentration. The temperature profile and other critical variables on the ammonia purification column are continuously monitored by the computerized HCN process control system. Any deviations from normal operating conditions activate alarms.

The effluent from the HCN recovery system consists of the bottoms from the packed stripping column. The packed stripping column is only one of several columns in series to remove excess HCN. This stream goes directly to the south HCN tank and is sampled four times per day to insure normal concentrations. The temperature of the packed stripping column is continuously monitored by the HCN process control computer. An alarm is activated if the temperature drops below the normal operating temperature which would reduce its effectiveness as a steam stripper.

The typical makeup of this stream is as follows:

Ammonium sulfate	-	1000-2000 ppm (as NH_3 - N)
HCN	-	0 - 30 ppm
H_2SO_4	-	0.2 - 0.5%
Balance is water	-	99%

Two HCN area sumps discharge into the south HCN effluent tank. These sumps drain the diked area around the HCN unit. Effluent from these sumps is primarily rain or washdown water, but also includes any process drains which are necessary for maintenance. These sumps are sampled before being pumped to the south HCN tank via the common header.

The effluent from the Sequestrene area fed to the south HCN effluent tank is from the vent scrubber. This scrubber is an acid/scrubber cooler type system which is similar to one of the columns in the HCN recovery area. Sulfuric acid is used to scrub ammonia vapors to form ammonium sulfate in the scrubber system. Water is used as a purge to move the ammonium sulfate. This purge stream is sent to the south HCN effluent tank. Continuous monitoring of pH and periodic checks for potential organics by the unit ensures effluent quality to the south AWT tank.

Utilities - The two streams from the Utilities area are added to the AWT system directly into the first reaction vessel, the Neutralizer. These streams are added batch-wise periodically. Both of these streams are from the potable water system. One stream is the backwash of the ion exchange resin from regeneration. The other stream is the clarifier blow-down from the potable water system.

Cyanuric Chloride Unit - The hydrochloric acid sent to the effluent treatment area by CC is typically a 10% HCl solution. The acid is continually monitored by onstream analyzers for HCl concentration in the CC unit. In addition to the analyzer, a grab sample is pulled twice a day to check the analyzer for accuracy. This material is pumped into the bottoms acid tank, 4603-F, in the effluent treatment area. The acid tank is sampled and analyzed by effluent treatment personnel twice a day for % HCl and ppm chlorine. From this tank

the acid is fed as required to AWT which at a typical flow of approximately 200 gpm. Normally, this stream is continuous to AWT.

The spent caustic is the spent caustic from the vent/vacuum system used in the CC unit to prevent emissions of hydrogen cyanide, cyanogen chloride, and cyanuric chloride to the atmosphere. The normal operating range of the scrubber system is 6% to 18% caustic. The scrubber system is monitored continuously by an on-line analyzer for caustic strength. A grab sample is pulled twice a day to cross-check the continuous analyzer. Once the strength of the caustic is reduced to 6%, the spent caustic is pumped to the spent caustic tank, 2438-F, in the effluent treatment area. Spent caustic is normally a continuous stream to the AWT unit.

The dryer drains from the CC area are sent to AWT batch wise. This material is collected in the CC area in 2424-A. Once the tank is nearly full, the dryer drain materials are pumped to AWT. The effluent treatment process control computer controls and monitors flow rates to ensure no upsets in the operating parameters. The dryer drains are a result of the moisture removal from the CC process using beds of calcium chloride and calcium sulfate. The water vapor is removed from the process stream by the calcium chloride forming an aqueous solution at the bottom of the dryer. Typically, the dryer drain tank is pumped to AWT once or twice a week (a total of 2000 gallons).

SUMMARY OF CHARACTERIZATION AND OF
PROCESS CONTROL OF WASTE STREAMS TO AWT

<u>Flow</u>	<u>Waste Stream</u>	<u>Tank</u>	<u>Monitoring Freq</u>
200 gpm	Excess By-Product HCl	4303F (ET)	-
	Water 89-91%		Continuous,
	HCl 10%-11%		Grab, 2/day
	CHCl ₃ 0-1 ppm		On Demand
	CHCl ₂ 0-0.3 ppm		On Demand
	Toluene 0-0.2 ppm		On Demand
	Cl ₂ 500-1500 ppm		Grab, 2/day
	CNCl 10-400 ppm		On Demand
10,000 gal/day	Spent Caustic From CC Vent Scrubber	2436F (ET)	-
	Water 90-99%		Continuous
	NaOH 1-10%		On Demand
	CHCl ₃ 0-13 ppm		On Demand
	CH ₂ Cl ₂ 0-0.09 ppm		On Demand
	Toluene 0-0.05 ppm		On Demand
2,000 gal/wk	Dryer Drains From CC Unit	2424A(CC)	-
	Water 90-95%		On Demand
	CaCl 5-10%		On Demand
	HCl 0-0.5%		On Demand
	CHCl ₃ 0-0.5 ppm		On Demand
	CH ₂ Cl ₂ 0-0.02 ppm		On Demand
	Toluene 0-0.05 ppm		On Demand
	Cl ₂ 500 ppm		On Demand
	CCl ₄ <0.5 ppm		On Demand
	CNCl Saturated		On Demand
	Selenium 0-3 ppm		On Demand
45,000/day	Demineralizer Stream-Utilities	2012F/FA (Util)	-
	Water 98-100%		On Demand
	Sulfuric Acid 0-4%		On Demand
	Sodium Sulfate 0-4%		On Demand
	Calcium Sulfate 0-2%		On Demand
	Sodium Chloride 0-1%		On Demand
	pH 1.5-7		Continuous

Flow
11,000 gal/day

Waste Stream
Potable Water
Clarifier Blowdown
Water 80-100%
Calcium,
Magnesium & Iron
Carbonates,
Oxides & Sulfates 2-20%

Tank
2208A
(Util)

Monitoring Freq

On Demand

100 gpm

HCN Unit Wastewater
CN 0-50
Ammonium Sulfate 3000-11000
Ammonia 100-2000
Sulfuric Acid 0.1-0.5%
Water 99.8-100%

ppm
ppm
ppm

2431F (ET)

6/day
On Demand
6/day
On Demand

10 gpm

Sequestrene Vent
Scrubber Blowdown
Sulfuric Acid 0-0.9%
Ammonium Sulfate 0-10%
pH 1.5-5
Water 81-100%

2431F (ET)

On Demand
On Demand
Continuous

NATIONAL EXPRESS LABORATORIES INC.

NATEX

Gulf South Environmental Laboratory, Inc.
6801 Press Drive—East Building
New Orleans LA 70126
504 783-4723
FAX (504) 783-3625

April 17, 1991

Mr. Richard Boudreau
Ciba-Geigy Corporation
P.O. Box 11
St. Gabriel, LA 70776

Subject: Purchase Order No. X203438
GSELI Episoda GAT

Dear Mr. Boudreau:

Enclosed please find the analytical results for samples received by Gulf South Environmental Laboratory on April 5, 1991.

This report contains a brief discussion of the analytical methodologies employed as well as a summary of the quality control data associated with the analyses, and copies of your chain of custody documentation.

If you require any additional information concerning these data or the report, or would like to make any suggestions and/or recommendations regarding our services, please contact our Client Services Representative listed below:

Mr. Bill Deckelmann, Manager, Ext. 243

Sincerely,

Cindy Olavesen

Cindy Olavesen
Report Center Manager

CO/jrh
Enclosure

Analytical Methodology

The Ciba-Geigy Corporation samples received on April 5, 1991 were analyzed for TCLP volatile and semivolatile organics, pesticides/herbicides, metals and conventional parameters. Specific methods employed for the analyses are indicated.

- TCLP Extraction - Method 40CFR268
- TCLP Volatile Organics - Method 8240
- TCLP Semivolatile Organics - Method 8270
- TCLP Pesticides - Method 8080
- TCLP Herbicides - Method 8150
- TCLP Metals - Method 6010/7470
- Conventional Parameters
 - Corrosivity by pH - Method 9040
 - Ignitability - Method 1010
 - Reactive Cyanide - Method 7.3.3.2
 - Reactive Sulfide - Method 7.3.4.1

Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) measures are employed to insure the quality and define the accuracy of analytical data. The QA/QC measures employed with these analyses are summarized below:

Organics Analyses (Volatile and Semivolatile)

Instrument calibration - Instrument calibration is performed in accordance with EPA contract laboratory protocols. Instrument recalibration is performed every 12 hours.

Blank analysis - Method blanks are analyzed at the frequency specified by CLP protocols. Method blanks demonstrate the level of background (laboratory) contamination. Blank data are presented on the results page along with the sample data.

Surrogate spike analysis - Each sample is fortified with recovery (surrogate) standards prior to extraction or purging. The recovery of the surrogate standards is a measure of the efficiency of the analysis. A summary of surrogate recovery data is presented in the QA/QC Summary.

Matrix spike/duplicate spike/blank spike - Specific analytes are added to selected samples prior to extraction or purging. The results of the matrix spike/duplicate spike analyses are a measure of the precision and accuracy of the analysis. The blank spike provides method performance data in the absence of matrix effects. Spike data are included in the QA/QC Summary.

Pesticides/Herbicides

Instrument calibration - Instrument calibration is performed in accordance with method protocols. Instrument calibration is verified every 10 samples.

Blank analysis - Method blanks are analyzed at the frequency specified by method protocols. Method blanks demonstrate the level of background (laboratory) contamination. Blank data are presented on the results page along with the sample data.

Surrogate spike analysis - Each sample is fortified with recovery (surrogate) standards prior to the extraction. The recovery of the surrogate standards is a measure of the efficiency of the analysis. A summary of surrogate recovery data is presented in the QA/QC Summary.

Matrix spike/duplicate spike/blank spike - Specific analytes are added to selected samples prior to the extraction. The results of the matrix spike/duplicate spike analyses are a measure of the precision and accuracy of the analysis. The blank spike provides method performance data in the absence of matrix effects. Spike data are included in the QA/QC Summary.

Metals Analysis

Instrument calibration - Instrument calibration is performed in accordance with EPA contract laboratory protocols. Calibration verification is conducted every two hours or every ten samples, whichever is more frequent.

Blank analysis - A method blank is prepared with each batch of samples digested. The method blank defines the level of background (laboratory) contamination.

Duplicate analysis - Selected samples are prepared and analyzed in duplicate to define the precision of the results.

Matrix spike analysis - Each of the metals of interest are added to selected samples prior to sample preparation. The results of spike analyses define the accuracy of the results. Blank, duplicate and matrix spike results for metals analyses are summarized in the QA/QC Summary.

Conventional Parameters

Calibration - Calibration for each of the specific conventional analyses is performed according to the specific method utilized.

Replicate analyses - QC for the conventional analyses was limited to replicate analyses to define precision (reproducibility) of the analyses.

Check Samples - Known check samples for the conventional analyses also analyzed to verify calibration and to measure the efficiency of each method.

Reporting Units

Analytical results reported in ppb denote micrograms per kilograms (ug/kg) in soil samples and micrograms per liter (ug/L) in water samples.

Analytical results reported in ppm denote milligrams per kilograms (mg/kg) in soil samples and milligrams per liter (mg/L) in water samples.

NatEx Laboratories, Inc.

Toxicity Characteristic Constituents and Regulatory Levels

The following represents the Toxicity Characteristic constituent list and regulatory levels as defined by the new Toxicity Characteristic Leaching Procedure (TCLP) rule announced by the EPA on March 6, 1990.

<u>Constituent</u>	<u>Regulatory Level (mg/L)</u>
<u>METALS</u>	
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Chromium	5.0
Lead	5.0
Mercury	0.2
Selenium	1.0
Silver	5.0
<u>VOLATILES</u>	
Benzene	0.5
Carbon tetrachloride	0.5
Chlorobenzene	100.0
Chloroform	6.0
1,1-Dichloroethylene	0.7
1,2-Dichloroethane	0.5
Methyl ethyl ketone	200.0
Tetrachloroethylene	0.7
Trichloroethylene	0.5
Vinyl chloride	0.2
<u>SEMIVOLATILES</u>	
o-Cresol	200.0**
m-Cresol	200.0**
p-Cresol	200.0**
1,4-Dichlorobenzene	7.5
2,4-Dinitrotoluene	0.13*
Hexachlorobenzene	0.13*
Hexachloro-1,3-butadiene	0.5
Hexachloroethane	3.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0*
2,4,5-Trichlorophenol	400.0
2,4,6-Trichlorophenol	2.0

*Quantification limit is greater than regulatory level; quantitation limit becomes regulatory level.

**Where cresols cannot be differentiated, regulatory level for total cresol is 200 mg/L.

NatEx Laboratories, Inc.

Toxicity Characteristic Constituents and Regulatory Levels

<u>Constituent</u>	<u>Regulatory Level (mg/L)</u>
<u>PESTICIDES</u>	
Chlordane	0.03
Endrin	0.02
Heptachlor (+ its hydroxide)	0.008
Lindane	0.4
Methoxychlor	10.0
Toxaphene	0.5
<u>HERBICIDES</u>	
2,4-D	10.0
2,4,5-TP (Silvex)	1.0

Narrative:

The continuing calibration verification for the analysis of some elements were outside the acceptance window of $\pm 10\%$. (All the CCV'S were at least 85% or above, with an exception of Silver which was 75% or above.) In our judgement, the reason the CCV's were lower was due to the particulate loading in the sample introduction system.

Analytical Results - TCLP Volatile Organics by Method 8240
Ciba-Geigy Corporation

Client ID: EA001736
 Description: Sequestrene
 GSELI ID: GAT-001
 Matrix: Waste
 Wet/Dry Basis: NA

(1) Collected: 4/4/91
 Received: 4/5/91
 Filtered & Prepared: 4/12/91
 Analyzed: 4/12/91
 Percent Moisture: NA

<u>CAS No.</u>	<u>P A R A M E T E R</u>	<u>Concentration, ug/L (ppb)</u>			
		<u>(2)</u> <u>Sample</u>	<u>Filter</u> <u>Blank</u>	<u>Lab</u> <u>Blank</u>	<u>Detection</u> <u>Limit</u>
71-43-2	Benzene	ND	ND	ND	25
56-23-5	Carbon Tetrachloride	ND	ND	ND	25
108-90-7	Chlorobenzene	ND	ND	ND	25
67-66-3	Chloroform	ND	ND	ND	25
107-06-2	1,2-Dichloroethane	ND	ND	ND	25
75-35-4	1,1-Dichloroethylene	ND	ND	ND	25
78-93-3	Methyl Ethyl Ketone	ND	ND	ND	50
127-18-4	Tetrachloroethylene	ND	ND	ND	25
79-01-6	Trichloroethylene	ND	ND	ND	25
75-01-4	Vinyl Chloride	ND	ND	ND	50

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) Sample contained < 0.5% solid material and therefore did not require leaching; sample was filtered prior to analysis.

Analytical Results - TCLP Volatile Organics by Method 8240
Ciba-Geigy Corporation

Client ID: EA001737
Description: Demin Effluent
GSELI ID: GAT-002
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Filtered & Prepared: 4/12/91
Analyzed: 4/12/91
Percent Moisture: NA

<u>CAS No.</u>	<u>P A R A M E T E R</u>	<u>Concentration, ug/L (ppb)</u>			
		(2) Sample	Filter Blank	Lab Blank	Detection Limit
71-43-2	Benzene	ND	ND	ND	25
56-23-5	Carbon Tetrachloride	ND	ND	ND	25
108-90-7	Chlorobenzene	ND	ND	ND	25
67-66-3	Chloroform	ND	ND	ND	25
107-06-2	1,2-Dichloroethane	ND	ND	ND	25
75-35-4	1,1-Dichloroethylene	ND	ND	ND	25
78-93-3	Methyl Ethyl Ketone	ND	ND	ND	50
127-18-4	Tetrachloroethylene	ND	ND	ND	25
79-01-6	Trichloroethylene	ND	ND	ND	25
75-01-4	Vinyl Chloride	ND	ND	ND	50

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) Sample contained < 0.5% solid material and therefore did not require leaching; sample was filtered prior to analysis.

Analytical Results - TCLP Volatile Organics by Method 8240
Ciba-Geigy Corporation

Client ID: EA001738
 Description: AWT Clarifier Underflow
 GSELI ID: GAT-003
 Matrix: Waste
 Wet/Dry Basis: NA

(1) Collected: 4/4/91
 Received: 4/5/91
 Leached & Prepared: 4/8,12/91
 Analyzed: 4/12/91
 Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
71-43-2	Benzene	ND	ND	ND	25
56-23-5	Carbon Tetrachloride	ND	ND	ND	25
108-90-7	Chlorobenzene	ND	ND	ND	25
67-66-3	Chloroform	ND	ND	ND	25
107-06-2	1,2-Dichloroethane	ND	ND	ND	25
75-35-4	1,1-Dichloroethylene	ND	ND	ND	25
78-93-3	Methyl Ethyl Ketone	ND	ND	ND	50
127-18-4	Tetrachloroethylene	ND	ND	ND	25
79-01-6	Trichloroethylene	ND	ND	ND	25
75-01-4	Vinyl Chloride	ND	ND	ND	50

ND-Not Detected at or above the detection limit stated.
 (1) Collection date from chain-of-custody.

Analytical Results - TCLP Volatile Organics by Method 8240
Ciba-Geigy Corporation

Client ID: EA001739
Description: HCL (Dirty Acid)
GSELI ID: GAT-004
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
(3) Filtered & Prepared: 4/12,12/91
(3) Analyzed: 4/12,12/91
Percent Moisture: NA

CAS No.	PARAMETER	Concentration ug/L (ppb)			
		(2) Sample	Filter Blank	Lab Blank	Detection Limit
71-43-2	Benzene	ND	ND	ND	25
56-23-5	Carbon Tetrachloride	ND	ND	ND	25
108-90-7	Chlorobenzene	ND	ND	ND	25
67-66-3	Chloroform	52	ND	ND	25
107-06-2	1,2-Dichloroethane	ND	ND	ND	25
75-35-4	1,1-Dichloroethylene	ND	ND	ND	25
78-93-3	Methyl Ethyl Ketone	ND	ND	ND	50
127-18-4	Tetrachloroethylene	ND	ND	ND	25
79-01-6	Trichloroethylene	ND	ND	ND	25
75-01-4	Vinyl Chloride	ND	ND	ND	50

ND-Not Detected at or above the detection limit stated.

- (1) Collection date from chain-of-custody.
- (2) Sample contained < 0.5% solid material and therefore did not require leaching; sample was filtered prior to analysis.
- (3) Sample required re-analysis due to low recovery for d₈toluene (surrogate); re-analysis yielded similar results, indicating a sample matrix effect.

Analytical Results - TCLP Volatile Organics by Method 8240
Ciba-Geigy Corporation

Client ID: EA001740	(1) Collected: 4/4/91
Description: Utilities Clarifier Blow Down	Received: 4/5/91
GSELI ID: GAT-005	Leached & Prepared: 4/8,12/91
Matrix: Waste	Analyzed: 4/12/91
Wet/Dry Basis: NA	Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/L (ppb)			
		Sample	TCLP Blank	Lab Blank	Detection Limit
71-43-2	Benzene	ND	ND	ND	25
56-23-5	Carbon Tetrachloride	ND	ND	ND	25
108-90-7	Chlorobenzene	ND	ND	ND	25
67-66-3	Chloroform	ND	ND	ND	25
107-06-2	1,2-Dichloroethane	ND	ND	ND	25
75-35-4	1,1-Dichloroethylene	ND	ND	ND	25
78-93-3	Methyl Ethyl Ketone	ND	ND	ND	50
127-18-4	Tetrachloroethylene	ND	ND	ND	25
79-01-6	Trichloroethylene	ND	ND	ND	25
75-01-4	Vinyl Chloride	ND	ND	ND	50

ND-Not Detected at or above the detection limit stated.
 (1) Collection date from chain-of-custody.

Analytical Results - TCLP Volatile Organics by Method 8240
Ciba-Geigy Corporation

Client ID: EA001741
 Description: HCN Effluent
 GSELI ID: GAT-006
 Matrix: Waste
 Wet/Dry Basis: NA

(1) Collected: 4/4/91
 Received: 4/5/91
 Filtered & Prepared: 4/12/91
 Analyzed: 4/12/91
 Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/L (ppb)			
		(2) Sample	Filter Blank	Lab Blank	Detection Limit
71-43-2	Benzene	ND	ND	ND	25
56-23-5	Carbon Tetrachloride	ND	ND	ND	25
108-90-7	Chlorobenzene	ND	ND	ND	25
67-66-3	Chloroform	ND	ND	ND	25
107-06-2	1,2-Dichloroethane	ND	ND	ND	25
75-35-4	1,1-Dichloroethylene	ND	ND	ND	25
78-93-3	Methyl Ethyl Ketone	ND	ND	ND	50
127-18-4	Tetrachloroethylene	ND	ND	ND	25
79-01-6	Trichloroethylene	ND	ND	ND	25
75-01-4	Vinyl Chloride	ND	ND	ND	50

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) Sample contained < 0.5% solid material and therefore did not require leaching; sample was filtered prior to analysis.

Analytical Results - TCLP Volatile Organics by Method 8240
Ciba-Geigy Corporation

Client ID: EA001742
Description: Spent Caustic
GSELI ID: GAT-007
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Filtered & Prepared: 4/12/91
Analyzed: 4/12/91
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/L (ppb)			
		(2) Sample	Filter Blank	Lab Blank	Detection Limit(3)
71-43-2	Benzene	ND	ND	ND	2500
56-23-5	Carbon Tetrachloride	ND	ND	ND	2500
108-90-7	Chlorobenzene	ND	ND	ND	2500
67-66-3	Chloroform	13000	ND	ND	2500
107-06-2	1,2-Dichloroethane	ND	ND	ND	2500
75-35-4	1,1-Dichloroethylene	ND	ND	ND	2500
78-93-3	Methyl Ethyl Ketone	ND	ND	ND	5000
127-18-4	Tetrachloroethylene	ND	ND	ND	2500
79-01-6	Trichloroethylene	ND	ND	ND	2500
75-01-4	Vinyl Chloride	ND	ND	ND	5000

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) Sample contained < 0.5% solid material and therefore did not require leaching; sample was filtered prior to analysis.

(3) Results based on a 1:500 dilution; diluted due to the matrix of the sample.

Analytical Results - TCLP Volatile Organics by Method 8240
Ciba-Geigy Corporation

Client ID: EA001743
Description: Dryer-Demin D.A.W.
GSELI ID: GAT-008
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Filtered & Prepared: 4/12/91
Analyzed: 4/12/91
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/L (ppb)			Detection Limit(3)
		(2) Sample	Filter Blank	Lab Blank	
71-43-2	Benzene	ND	ND	ND	5000
56-23-5	Carbon Tetrachloride	ND	ND	ND	5000
108-90-7	Chlorobenzene	ND	ND	ND	5000
67-66-3	Chloroform	ND	ND	ND	5000
107-06-2	1,2-Dichloroethane	ND	ND	ND	5000
75-35-4	1,1-Dichloroethylene	ND	ND	ND	5000
78-93-3	Methyl Ethyl Ketone	ND	ND	ND	10000
127-18-4	Tetrachloroethylene	ND	ND	ND	5000
79-01-6	Trichloroethylene	ND	ND	ND	5000
75-01-4	Vinyl Chloride	ND	ND	ND	10000

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) Sample contained < 0.5% solid material and therefore did not require leaching; sample was filtered prior to analysis.

(3) Results based on a 1:1000 dilution; diluted due to the matrix of the sample.

Analytical Results - TCLP Volatile Organics by Method 8240
Ciba-Geigy Corporation

Client ID: Trip Blank
 Description: NA
 GSELI ID: GAT-009
 Matrix: Water
 Wet/Dry Basis: NA

(1) Collected: 4/4/91
 Received: 4/5/91
 Filtered & Prepared: 4/12/91
 Analyzed: 4/12/91
 Percent Moisture: NA

<u>CAS No.</u>	<u>P A R A M E T E R</u>	<u>Concentration, ug/L (ppb)</u>			
		(2) <u>Sample</u>	<u>Filter</u> <u>Blank</u>	<u>Lab</u> <u>Blank</u>	<u>Detection</u> <u>Limit</u>
71-43-2	Benzene	ND	ND	ND	5
56-23-5	Carbon Tetrachloride	ND	ND	ND	5
108-90-7	Chlorobenzene	ND	ND	ND	5
67-66-3	Chloroform	ND	ND	ND	5
107-06-2	1,2-Dichloroethane	ND	ND	ND	5
75-35-4	1,1-Dichloroethylene	ND	ND	ND	5
78-93-3	Methyl Ethyl Ketone	ND	ND	ND	10
127-18-4	Tetrachloroethylene	ND	ND	ND	5
79-01-6	Trichloroethylene	ND	ND	ND	5
75-01-4	Vinyl Chloride	ND	ND	ND	10

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) Sample contained < 0.5% solid material and therefore did not require leaching; sample was filtered prior to analysis.

Analytical Results - TCLP Semivolatile Organics by Method 8270
Ciba-Geigy Corporation

Client ID: EA001736
Description: Sequestrene
GSELI ID: GAT-001
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Filtered & Prepared: 4/8,8/91
Analyzed: 4/10/91
Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)			Detection Limit
			TCLP Blank	Lab Blank		
<u>BASE/NEUTRAL COMPOUNDS</u>						
106-46-7	1,4-Dichlorobenzene	ND	ND	ND	10	
121-14-2	2,4-Dinitrotoluene	ND	ND	ND	10	
118-74-1	Hexachlorobenzene	ND	ND	ND	10	
87-68-3	Hexachlorobutadiene	ND	ND	ND	10	
67-72-1	Hexachloroethane	ND	ND	ND	10	
98-95-3	Nitrobenzene	ND	ND	ND	10	
110-86-1	Pyridine	ND	ND	ND	10	
<u>ACID COMPOUNDS</u>						
95-48-7	2-Methylphenol (o-Cresol)	ND	ND	ND	10	
106-44-5	(2) 4-Methylphenol (p-Cresol)	ND	ND	ND	10	
108-39-4	(2) 3-Methylphenol (m-Cresol)	ND	ND	ND	10	
87-86-5	Pentachlorophenol	ND	ND	ND	50	
95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	50	
88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	10	

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) These two isomers coelute under the conditions used for the analyses; therefore the precise isomer in the sample cannot be determined. Any results are being arbitrarily reported as 4-methylphenol.

Analytical Results - TCLP Semivolatile Organics by Method 8270
Ciba-Geigy Corporation

Client ID: EA001737
 Description: Demin Effluent
 GSELI ID: CAT-002
 Matrix: Waste
 Wet/Dry Basis: NA

(1) Collected: 4/4/91
 Received: 4/5/91
 Filtered & Prepared: 4/8,8/91
 Analyzed: 4/10/91
 Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
BASE/NEUTRAL COMPOUNDS					
106-46-7	1,4-Dichlorobenzene	ND	ND	ND	10
121-14-2	2,4-Dinitrotoluene	ND	ND	ND	10
118-74-1	Hexachlorobenzene	ND	ND	ND	10
87-68-3	Hexachlorobutadiene	ND	ND	ND	10
67-72-1	Hexachloroethane	ND	ND	ND	10
98-95-3	Nitrobenzene	ND	ND	ND	10
110-86-1	Pyridine	ND	ND	ND	10
ACID COMPOUNDS					
95-48-7	2-Methylphenol (o-Cresol)	ND	ND	ND	10
106-44-5	(2) 4-Methylphenol (p-Cresol)	ND	ND	ND	10
108-39-4	(2) 3-Methylphenol (m-Cresol)	ND	ND	ND	10
87-86-5	Pentachlorophenol	ND	ND	ND	50
95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	50
88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	10

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) These two isomers coelute under the conditions used for the analyses; therefore the precise isomer in the sample cannot be determined. Any results are being arbitrarily reported as 4-methylphenol.

Analytical Results - TCLP Semivolatile Organics by Method 8270
Ciba-Geigy Corporation

Client ID: EA001738
 Description: AWT Clarifier Underflow
 GSELI ID: GAT-003
 Matrix: Waste
 Wet/Dry Basis: NA

(1) Collected: 4/4/91
 Received: 4/5/91
 Leached & Prepared: 4/7,8/91
 Analyzed: 4/10/91
 Percent Moisture: NA

CAS No.	PARAMETER	Concentration, ug/L (ppb)			
		Sample	TCLP Blank	Lab Blank	Detection Limit
<u>BASE/NEUTRAL COMPOUNDS</u>					
106-46-7	1,4-Dichlorobenzene	ND	ND	ND	10
121-14-2	2,4-Dinitrotoluene	ND	ND	ND	10
118-74-1	Hexachlorobenzene	ND	ND	ND	10
87-68-3	Hexachlorobutadiene	ND	ND	ND	10
67-72-1	Hexachloroethane	ND	ND	ND	10
98-95-3	Nitrobenzene	ND	ND	ND	10
110-86-1	Pyridine	ND	ND	ND	10
<u>ACID COMPOUNDS</u>					
95-48-7	2-Methylphenol (o-Cresol)	ND	ND	ND	10
106-44-5	(2) 4-Methylphenol (p-Cresol)	ND	ND	ND	10
108-39-4	(2) 3-Methylphenol (m-Cresol)	ND	ND	ND	10
87-86-5	Pentachlorophenol	ND	ND	ND	50
95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	50
88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	10

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) These two isomers coelute under the conditions used for the analysis; therefore the precise isomer in the sample cannot be determined. Any results are being arbitrarily reported as 4-methylphenol.

Analytical Results - TCLP Semivolatile Organics by Method 8270
Ciba-Geigy Corporation

Client ID: EA001739
Description: HCL (Dirty Acid)
GSELI ID: GAT-004
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Filtered & Prepared: 4/8,8/91
Analyzed: 4/10/91
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/L (ppb)			
		(3) Sample	TCLP Blank	Lab Blank	Detection Limit(4)
<u>BASE/NEUTRAL COMPOUNDS</u>					
106-46-7	1,4-Dichlorobenzene	ND	ND	ND	100
121-14-2	2,4-Dinitrotoluene	ND	ND	ND	100
118-74-1	Hexachlorobenzene	ND	ND	ND	100
87-68-3	Hexachlorobutadiene	ND	ND	ND	100
67-72-1	Hexachloroethane	ND	ND	ND	100
98-95-3	Nitrobenzene	ND	ND	ND	100
110-86-1	Pyridine	ND	ND	ND	100
<u>ACID COMPOUNDS</u>					
95-48-7	2-Methylphenol (o-Cresol)	ND	ND	ND	100
106-44-5	(2) 4-Methylphenol (p-Cresol)	ND	ND	ND	100
108-39-4	(2) 3-Methylphenol (m-Cresol)	ND	ND	ND	100
87-86-5	Pentachlorophenol	ND	ND	ND	500
95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	500
88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	100

ND-Not Detected at or above the detection limit stated.

- (1) Collection date from chain-of-custody.
- (2) These two isomers coelute under the conditions used for the analysis; therefore the precise isomer in the sample cannot be determined. Any results are being arbitrarily reported as 4-methylphenol.
- (3) Acid surrogate recovery was below QC limits. Blank spike results were within QC limits, indicating that loss of acid surrogate is a sample matrix effect.
- (4) Sample was diluted because of the nature of the sample matrix.

Analytical Results - TCLP Semivolatile Organics by Method 8270
Ciba-Geigy Corporation

Client ID: EA001740
Description: Utilities Clarifier Blow Down
GSELI ID: GAT-005
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Leached & Prepared: 4/7,8/91
Analyzed: 4/10/91
Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
BASE/NEUTRAL COMPOUNDS					
106-46-7	1,4-Dichlorobenzene	ND	ND	ND	10
121-14-2	2,4-Dinitrotoluene	ND	ND	ND	10
118-74-1	Hexachlorobenzene	ND	ND	ND	10
87-68-3	Hexachlorobutadiene	ND	ND	ND	10
67-72-1	Hexachloroethane	ND	ND	ND	10
98-95-3	Nitrobenzene	ND	ND	ND	10
110-86-1	Pyridine	ND	ND	ND	10
ACID COMPOUNDS					
95-48-7	2-Methylphenol (o-Cresol)	ND	ND	ND	10
106-44-5	(2) 4-Methylphenol (p-Cresol)	ND	ND	ND	10
108-39-4	(2) 3-Methylphenol (m-Cresol)	ND	ND	ND	10
87-86-5	Pentachlorophenol	ND	ND	ND	50
95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	50
88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	10

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) These two isomers coelute under the conditions used for the analyses; therefore the precise isomer in the sample cannot be determined. Any results are being arbitrarily reported as 4-methylphenol.

Analytical Results - TCLP Semivolatile Organics by Method 8270
Ciba-Geigy Corporation

Client ID: EA001741
Description: HCN Effluent
GSELI ID: GAT-006
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Filtered & Prepared: 4/8.8/91
Analyzed: 4/10/91
Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)			Detection Limit
			TCLP Blank	Lab Blank		
<u>BASE/NEUTRAL COMPOUNDS</u>						
106-46-7	1,4-Dichlorobenzene	ND	ND	ND	10	
121-14-2	2,4-Dinitrotoluene	ND	ND	ND	10	
118-74-1	Hexachlorobenzene	ND	ND	ND	10	
87-68-3	Hexachlorobutadiene	ND	ND	ND	10	
67-72-1	Hexachloroethane	ND	ND	ND	10	
98-95-3	Nitrobenzene	ND	ND	ND	10	
110-86-1	Pyridine	ND	ND	ND	10	
<u>ACID COMPOUNDS</u>						
95-48-7	2-Methylphenol (o-Cresol)	ND	ND	ND	10	
106-44-5	(2) 4-Methylphenol (p-Cresol)	ND	ND	ND	10	
108-39-4	(2) 3-Methylphenol (m-Cresol)	ND	ND	ND	10	
87-86-5	Pentachlorophenol	ND	ND	ND	50	
95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	50	
88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	10	

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) These two isomers coelute under the conditions used for the analyses; therefore the precise isomer in the sample cannot be determined. Any results are being arbitrarily reported as 4-methylphenol.

Analytical Results - TCLP Semivolatile Organics by Method 8270
Ciba-Geigy Corporation

Client ID: EA001742
Description: Spent Caustic
GSELI ID: GAT-007
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Filtered & Prepared: 4/8,8/91
Analyzed: 4/10,11/91
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/L (ppb)			
		(3) Sample	TCLP Blank	Lab Blank	Detection Limit(4)
BASE/NEUTRAL COMPOUNDS					
106-46-7	1,4-Dichlorobenzene	ND	ND	ND	100
121-14-2	2,4-Dinitrotoluene	ND	ND	ND	100
118-74-1	Hexachlorobenzene	ND	ND	ND	100
87-68-3	Hexachlorobutadiene	ND	ND	ND	100
67-72-1	Hexachloroethane	ND	ND	ND	100
98-95-3	Nitrobenzene	ND	ND	ND	100
110-86-1	Pyridine	ND	ND	ND	100
ACID COMPOUNDS					
95-48-7	2-Methylphenol (o-Cresol)	ND	ND	ND	100
106-44-5	(2) 4-Methylphenol (p-Cresol)	ND	ND	ND	100
108-39-4	(2) 3-Methylphenol (m-Cresol)	ND	ND	ND	100
87-86-5	Pentachlorophenol	ND	ND	ND	500
95-93-4	2,4,5-Trichlorophenol	ND	ND	ND	500
88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	100

ND-Not Detected at or above the detection limit stated.

- (1) Collection date from chain-of-custody.
- (2) These two isomers coelute under the conditions used for the analyses; therefore the precise isomer in the sample cannot be determined. Any results are being arbitrarily reported as 4-methylphenol.
- (3) Acid surrogate recovery was below QC limits. Blank spike results were within QC limits, indicating that loss of acid surrogate is a sample matrix effect. Several internal standards were not recovered; re-analysis yielded similar results. The recovery of 2-fluorobiphenyl and terphenyl-d₁ was based on an alternate internal standard.
- (4) Sample was diluted because of the nature of the sample matrix.

Analytical Results - TCLP Semivolatile Organics by Method 8270
Ciba-Geigy Corporation

Client ID: EA001743
Description: Dryer ~~Sample~~ **IRAN**
GSELI ID: GAT-008
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Filtered & Prepared: 4/8,8/91
Analyzed: 4/10/91
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/L (ppb)			
		Sample	TCLP Blank	Lab Blank	Detection Limit(3)
BASE/NEUTRAL COMPOUNDS					
106-46-7	1,4-Dichlorobenzene	ND	ND	ND	100
121-14-2	2,4-Dinitrotoluene	ND	ND	ND	100
118-74-1	Hexachlorobenzene	ND	ND	ND	100
87-68-3	Hexachlorobutadiene	ND	ND	ND	100
67-72-1	Hexachloroethane	ND	ND	ND	100
98-95-3	Nitrobenzene	ND	ND	ND	100
110-86-1	Pyridine	ND	ND	ND	100
ACID COMPOUNDS					
95-48-7	2-Methylphenol (o-Cresol)	ND	ND	ND	100
106-44-5	(2) 4-Methylphenol (p-Cresol)	ND	ND	ND	100
108-39-4	(2) 3-Methylphenol (m-Cresol)	ND	ND	ND	100
87-86-5	Pentachlorophenol	ND	ND	ND	500
95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	500
88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	100

ND-Not Detected at or above the detection limit stated.

- (1) Collection date from chain-of-custody.
- (2) These two isomers coelute under the conditions used for the analyses; therefore the precise isomer in the sample cannot be determined. Any results are being arbitrarily reported as 4-methylphenol.
- (3) Sample was diluted because of the nature of the sample matrix.

Analytical Results - TCLP Pesticides by Method 8080
Ciba-Geigy Corporation

Client ID: EA001736
Description: Sequestrene
GSELI ID: GAT-001
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/12/91
Percent Moisture: NA

<u>CAS No.</u>	<u>Parameter</u>	<u>Sample</u>	<u>Concentration, ug/L (ppb)</u>		
			<u>TCLP Blank</u>	<u>Lab Blank</u>	<u>Detection Limit</u>
<u>PESTICIDES</u>					
72-20-8	Endrin	ND	ND	ND	0.2
58-89-9	Lindane	ND	ND	ND	0.1
57-74-9	Chlordane	ND	ND	ND	0.2
76-44-8	Heptachlor	ND	ND	ND	0.1
1024-57-3	Heptachlor Epoxide	ND	ND	ND	0.2
72-43-5	Mathoxychlor	ND	ND	ND	1.0
8001-35-2	Toxaphene	ND	ND	ND	2.0

Analytical Results - TCLP Herbicides by Method 8150

Client ID: EA001736
Description: Sequestrene
GSELI ID: GAT-001
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/15/91
Percent Moisture: NA

CAS No.	PARAMETER	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
HERBICIDES					
94-75-7	2,4-D	ND	ND	ND	24.0
93-72-1	2,4,5-TF	ND	ND	ND	3.4

ND-Not Detected at or above the detection limit stated.
(1) Collection date from the chain-of-custody.

Analytical Results - TCLP Pesticides by Method 8080
Ciba-Geigy Corporation

Client ID: EA001737
Description: Damin Effluent
GSELI ID: GAT-002
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/12/91
Percent Moisture: NA

<u>CAS No.</u>	<u>Parameter</u>	<u>Concentration, ug/L (ppb)</u>			
		<u>Sample</u>	<u>TCLP Blank</u>	<u>Lab Blank</u>	<u>Detection Limit</u>
<u>PESTICIDES</u>					
72-20-8	Endrin	ND	ND	ND	0.2
58-89-9	Lindane	ND	ND	ND	0.1
57-74-9	Chlordane	ND	ND	ND	0.2
76-44-8	Heptachlor	ND	ND	ND	0.1
1024-57-3	Heptachlor Epoxide	ND	ND	ND	0.2
72-43-5	Methoxychlor	ND	ND	ND	1.0
8001-35-2	Toxaphene	ND	ND	ND	2.0

Analytical Results - TCLP Herbicides by Method 8150

Client ID: EA001737
Description: Damin Effluent
GSELI ID: GAT-002
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/15/91
Percent Moisture: NA

<u>CAS No.</u>	<u>Parameter</u>	<u>Sample</u>	<u>Concentration, ug/L (ppb)</u>		
			<u>TCLP Blank</u>	<u>Lab Blank</u>	<u>Detection Limit</u>
<u>HERBICIDES</u>					
94-75-7	2,4-D	ND	ND	ND	24.0
93-72-1	2,4,5-TP	ND	ND	ND	3.4

ND-Not Detected at or above the detection limit stated.
(1) Collection date from the chain-of-custody.

Analytical Results - TCLP Pesticides by Method 8080
Ciba-Geigy Corporation

Client ID: EA001738
Description: AWT Clarifier Underflow
GSELI ID: GAT-003
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/8/91
Analyzed: 4/11/91
Percent Moisture: NA

Wet/Dry Basis: %

CAS No.	Parameter	Concentration, ug/L (ppb)			
		Sample	TCLP Blank	Lab Blank	Detection Limit
PESTICIDES					
72-20-8	Endrin	ND	ND	ND	0.2
58-89-9	Lindane	ND	ND	ND	0.1
57-74-9	Chlordane	ND	ND	ND	0.2
76-44-8	Heptachlor	ND	ND	ND	0.1
1024-57-3	Heptachlor Epoxide	ND	ND	ND	0.2
72-43-5	Mathoxychlor	ND	ND	ND	1.0
8001-35-2	Toxaphene	ND	ND	ND	2.0

Analytical Results - TCLP Herbicides by Method 8150

Client ID: EA001738
Description: AWT Clarifier Underflow
GSELI ID: GAT-003
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/8/91
Analyzed: 4/16/91
Percent Moisture: NA

		Concentration, ug/L (ppb)			
CAS No.	Parameter	Sample	TCLP Blank	Lab Blank	Detection Limit
HERBICIDES					
94-75-7	2,4-D	ND	ND	ND	12
93-72-1	2,4,5-TP	ND	ND	ND	1.7

ND-Not Detected at or above the detection limit stated.
(1) Collection date from the chain-of-custody.

Analytical Results - TCLP Pesticides by Method 8080
Ciba-Geigy Corporation

Client ID: EA001739
Description: HCL (Dirty Acid)
GSELI ID: GAT-004
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/12/91
Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration. ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
PESTICIDES					
72-20-8	Endrin	ND	ND	ND	1.0
58-89-9	Lindane	ND	ND	ND	0.5
57-74-9	Chlordane	ND	ND	ND	1.0
76-44-8	Heptachlor	ND	ND	ND	0.5
1024-57-3	Heptachlor Epoxide	ND	ND	ND	1.0
72-43-5	Methoxychlor	ND	ND	ND	5.0
8001-35-2	Toxaphena	ND	ND	ND	10.0

Analytical Results - TCLP Herbicides by Method 8150

Client ID: EA001739
Description: HCL (Dirty Acid)
GSELI ID: GAT-004
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/15/91
Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)			Detection Limit
			TCLP Blank	Lab Blank		
HERBICIDES						
94-75-7	2,4-D	ND	ND	ND	120	
93-72-1	2,4,5-TP	ND	ND	ND	17	

ND-Not Detected at or above the detection limit stated.
(1) Collection date from the chain-of-custody.

Analytical Results - TCLP Pesticides by Method 8080
Ciba-Geigy Corporation

Client ID: EA001740
Description: Utilities Clarifier Blow Down
GSELI ID: GAT-005
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/8/91
Analyzed: 4/11/91
Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
PESTICIDES					
72-20-8	Endrin	ND	ND	ND	0.2
58-89-9	Lindane	ND	ND	ND	0.1
57-74-9	Chlordane	ND	ND	ND	0.2
76-44-8	Heptachlor	ND	ND	ND	0.1
1024-57-3	Heptachlor Epoxide	ND	ND	ND	0.2
72-43-5	Mathoxychlor	ND	ND	ND	1.0
8001-35-2	Toxaphene	ND	ND	ND	2.0

Analytical Results - TCLP Herbicides by Method 8150

Client ID: EA001740
Description: Utilities Clarifier Blow Down
GSELI ID: GAT-005
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/10/91
Analyzed: 4/16/91
Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
HERBICIDES					
94-75-7	2,4-D	ND	ND	ND	12
93-72-1	2,4,5-TP	ND	ND	ND	1.7

ND-Not Detected at or above the detection limit stated.
(1) Collection date from the chain-of-custody.

Analytical Results - TCLP Pesticides by Method 8080
Ciba-Gaigy Corporation

Client ID: EA001741
Description: HCN Effluent
GSELI ID: GAT-006
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/12/91
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/L (ppb)			
		Sample	TCLP Blank	Lab Blank	Detection Limit
PESTICIDES					
72-20-8	Endrin	ND	ND	ND	0.2
58-89-9	Lindane	ND	ND	ND	0.1
57-74-9	Chlordane	ND	ND	ND	0.2
76-44-8	Heptachlor	ND	ND	ND	0.1
1024-57-3	Heptachlor Epoxide	ND	ND	ND	0.2
72-43-5	Methoxychlor	ND	ND	ND	1.0
8001-35-2	Toxaphene	ND	ND	ND	2.0

Analytical Results - TCLP Herbicides by Method 8150

Client ID: EA001741
Description: HCN Effluent
GSELI ID: GAT-006
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/15/91
Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
HERBICIDES					
94-75-7	2,4-D	ND	ND	ND	24.0
93-72-1	2,4,5-TF	ND	ND	ND	3.4

ND-Not Detected at or above the detection limit stated.
(1) Collection date from the chain-of-custody.

Analytical Results - TCLP Pesticides by Method 8080
Ciba-Geigy Corporation

Client ID: EA001742
Description: Spent Caustic
GSELI ID: GAT-007
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/12/91
Percent Moisture: NA

<u>CAS No.</u>	<u>Parameter</u>	<u>Concentration, ug/L (ppb)</u>			
		<u>Sample</u>	<u>TCLP Blank</u>	<u>Lab Blank</u>	<u>Detection Limit</u>
<u>PESTICIDES</u>					
72-20-8	Endrin	ND	ND	ND	1.0
58-89-9	Lindane	ND	ND	ND	0.5
57-74-9	Chlordane	ND	ND	ND	1.0
76-44-8	Heptachlor	ND	ND	ND	0.5
1024-57-3	Heptachlor Epoxide	ND	ND	ND	1.0
72-43-5	Methoxychlor	ND	ND	ND	5.0
8001-35-2	Toxaphene	ND	ND	ND	10.0

Analytical Results - TCLP Herbicides by Method 8150

Client ID: EA001742
Description: Spent Caustic
GSELI ID: GAT-007
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/15/91
Percent Moisture: NA

<u>CAS No.</u>	<u>Parameter</u>	<u>Sample</u>	<u>Concentration, ug/L (ppb)</u>		
			<u>TCLP Blank</u>	<u>Lab Blank</u>	<u>Detection Limit</u>
HERBICIDES					
94-75-7	2,4-D	ND	ND	ND	120
93-72-1	2,4,5-TP	ND	ND	ND	17

ND-Not Detected at or above the detection limit stated.
(1) Collection date from the chain-of-custody.

Analytical Results - TCLP Pesticides by Method 8080
Ciba-Geigy Corporation

Client ID: EA001743
Description: Dryer ~~Basin~~ *DRAIN*
GSELI ID: GAT-008
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/12/91
Percent Moisture: NA

CAS No.	Parameter	Concentration, ug/L (ppb)			
		Sample	TCLP Blank	Lab Blank	Detection Limit
PESTICIDES					
72-20-8	Endrin	ND	ND	ND	1.0
58-89-9	Lindane	ND	ND	ND	0.5
57-74-9	Chlordane	ND	ND	ND	1.0
76-44-8	Heptachlor	ND	ND	ND	0.5
1024-57-3	Heptachlor Epoxide	ND	ND	ND	1.0
72-43-5	Methoxychlor	ND	ND	ND	5.0
8001-35-2	Toxaphene	ND	ND	ND	10.0

Analytical Results - TCLP Herbicides by Method 8150

Client ID: EA001743
Description: Dryer ~~Basin~~ *DRAIN*
GSELI ID: GAT-008
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: 4/9/91
Analyzed: 4/15/91
Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
HERBICIDES					
94-75-7	2,4-D	ND	ND	ND	120
93-72-1	2,4,5-TP	ND	ND	ND	17

ND-Not Detected at or above the detection limit stated.
(1) Collection date from the chain-of-custody.

Analytical Results - TCLP Metals
Ciba-Geigy Corporation

Client ID: EA001736
Description: Sequestrene
GSELI ID: CAT-001
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Leached & Prepared: 4/9/91
Analyzed: 4/9,16/91
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>
Arsenic	6010	mg/L	ND	ND	0.1
Barium	6010	mg/L	0.09	ND	0.05
Cadmium	6010	mg/L	ND	ND	0.01
Chromium	6010	mg/L	ND	ND	0.05
Lead	6010	mg/L	ND	ND	0.1
Mercury	7470	mg/L	ND	ND	0.0002
Selenium	6010	mg/L	ND	ND	0.1
Silver	6010	mg/L	ND	ND	0.05

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

Analytical Results - TCLP Metals
Ciba-Geigy Corporation

Client ID: EA001737
 Description: Demin Effluent
 GSELI ID: GAT-002
 Matrix: Waste
 Wet/Dry Basis: NA

(1) Collected: 4/4/91
 Received: 4/5/91
 Leached & Prepared: 4/9/91
 Analyzed: 4/9,16/91
 Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>
Arsenic	6010	mg/L	0.10	ND	0.1
Barium	6010	mg/L	ND	ND	0.05
Cadmium	6010	mg/L	ND	ND	0.01
Chromium	6010	mg/L	ND	ND	0.05
Lead	6010	mg/L	ND	ND	0.1
Mercury	7470	mg/L	0.0005	ND	0.0002
Selenium	6010	mg/L	0.11	ND	0.1
Silver	6010	mg/L	ND	ND	0.05

ND-Not Detected at or above the detection limit stated.
 (1) Collection data from chain-of-custody.

Analytical Results - TCLP Metals
Ciba-Geigy Corporation

Client ID: EA001738
Description: AWT Clarifier Underflow
GSELI ID: GAT-003
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Leached & Prepared: 4/9/91
Analyzed: 4/9,16/91
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>
Arsenic	6010	mg/L	ND	ND	0.1
Barium	6010	mg/L	0.56	ND	0.05
Cadmium	6010	mg/L	ND	ND	0.01
Chromium	6010	mg/L	0.13	ND	0.05
Lead	6010	mg/L	0.11	ND	0.1
Mercury	7470	mg/L	ND	ND	0.0002
Selenium	6010	mg/L	ND	ND	0.1
Silver	6010	mg/L	ND	ND	0.05

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

Analytical Results - TCLP Metals
Ciba-Geigy Corporation

Client ID: EA001739
Description: HCL (Dirty Acid)
GSELI ID: GAT-004
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Leached & Prepared: 4/9/91
Analyzed: 4/9,16/91
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>
Arsenic	6010	mg/L	ND	ND	0.1
Barium	6010	mg/L	0.31	ND	0.05
Cadmium	6010	mg/L	ND	ND	0.01
Chromium	6010	mg/L	0.26	ND	0.05
Lead	6010	mg/L	ND	ND	0.1
Mercury	7470	mg/L	ND	ND	0.0002
Selenium	6010	mg/L	ND	ND	0.1
Silver	6010	mg/L	ND	ND	0.05

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

Analytical Results - TCLP Metals
Ciba-Geigy Corporation

Client ID: EA001740	(1) Collected: 4/4/91
Description: Utilities Clarifier Blow Down	Received: 4/5/91
GSELI ID: GAT-005	Leached & Prepared: 4/9/91
Matrix: Waste	Analyzed: 4/9,16/91
Wet/Dry Basis: NA	Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>
Arsenic	6010	mg/L	ND	ND	0.1
Barium	6010	mg/L	1.21	ND	0.05
Cadmium	6010	mg/L	ND	ND	0.01
Chromium	6010	mg/L	ND	ND	0.05
Lead	6010	mg/L	ND	ND	0.1
Mercury	7470	mg/L	ND	ND	0.0002
Selenium	6010	mg/L	ND	ND	0.1
Silver	6010	mg/L	ND	ND	0.05

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

Analytical Results - TCLP Metals
Ciba-Geigy Corporation

Client ID: EA001741
 Description: HCN Effluent
 GSELI ID: GAT-006
 Matrix: Waste
 Wet/Dry Basis: NA

(1) Collected: 4/4/91
 Received: 4/5/91
 Leached & Prepared: 4/9/91
 Analyzed: 4/9,16/91
 Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>
Arsenic	6010	mg/L	ND	ND	0.1
Barium	6010	mg/L	0.05	ND	0.05
Cadmium	6010	mg/L	ND	ND	0.01
Chromium	6010	mg/L	0.50	ND	0.05
Lead	6010	mg/L	ND	ND	0.1
Mercury	7470	mg/L	ND	ND	0.0002
Selenium	6010	mg/L	ND	ND	0.1
Silver	6010	mg/L	ND	ND	0.05

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

Analytical Results - TCLP Metals
Ciba-Geigy Corporation

Client ID: EA001742
 Description: Spent Caustic
 GSELI ID: GAT-007
 Matrix: Waste
 Wet/Dry Basis: NA

(1) Collected: 4/4/91
 Received: 4/5/91
 Leached & Prepared: 4/9/91
 Analyzed: 4/9,16/91
 Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit(2)</u>
Arsenic	6010	mg/L	ND	ND	20.0
Barium	6010	mg/L	ND	ND	10.0
Cadmium	6010	mg/L	ND	ND	2.0
Chromium	6010	mg/L	ND	ND	10.0
Lead	6010	mg/L	ND	ND	20.0
Mercury	7470	mg/L	0.01	ND	0.0002
Selenium	6010	mg/L	ND	ND	20.0
Silver	6010	mg/L	ND	ND	10.0

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) Samples had to be diluted 1/200 due to matrix interference.

Analytical Results - TCLP Metals
Ciba-Geigy Corporation

Client ID: EA001743
Description: Dryer Bottom LEACH
GSELI ID: GAT-008
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Leached & Prepared: 4/8/91
Analyzed: 4/9,16/91
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit(2)</u>
Arsenic	6010	mg/L	1.33	ND	1.0
Barium	6010	mg/L	ND	ND	0.5
Cadmium	6010	mg/L	ND	ND	0.1
Chromium	6010	mg/L	ND	ND	0.5
Lead	6010	mg/L	1.20	ND	1.0
Mercury	7470	mg/L	0.0005	ND	0.0002
Selenium	6010	mg/L	2.26	ND	1.0
Silver	6010	mg/L	ND	ND	0.5

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) Samples had to be diluted 1/10 due to matrix interference.

Analytical Results - Conventional Parameters
Ciba-Geigy Corporation

Client ID: EA001736
Description: Sequestrene
GSELI ID: GAT-001
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: see below
Analyzed: see below
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
Corrosivity	9040	pH	1.63	NA	NA	4/8/91	4/8/91
Ignitability	1010	°C	>100	NA	NA	4/11/91	4/11/91
Reactive Cyanide	7.3.3.2	mg/L	ND	ND	2.5	4/10/91	4/10/91
Reactive Sulfide	7.3.4.1	mg/L	ND	ND	50.0	4/10/91	4/11/91

Client ID: EA001737
Description: Demin Effluent
GSELI ID: GAT-002
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: see below
Analyzed: see below
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
Corrosivity	9040	pH	1.96	NA	NA	4/8/91	4/8/91
Ignitability	1010	°C	>100	NA	NA	4/11/91	4/11/91
Reactive Cyanide	7.3.3.2	mg/L	ND	ND	2.5	4/10/91	4/10/91
Reactive Sulfide	7.3.4.1	mg/L	ND	ND	50.0	4/10/91	4/11/91

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

Analytical Results - Conventional Parameters
Ciba-Geigy Corporation

Client ID: EA001738
Description: AWT Clarifier Underflow
GSELI ID: GAT-003
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: see below
Analyzed: see below
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
Corrosivity	9040	pH	9.20	NA	NA	4/8/91	4/8/91
Ignitability	1010	°C	>100	NA	NA	4/11/91	4/11/91
Reactive Cyanide	7.3.3.2	mg/L	ND	ND	2.5	4/10/91	4/10/91
Reactive Sulfide	7.3.4.1	mg/L	ND	ND	50.0	4/10/91	4/11/91

Client ID: EA001739
Description: HCL (Dirty Acid)
GSELI ID: GAT-004
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: see below
Analyzed: see below
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
Corrosivity	9040	pH	0.20	NA	NA	4/8/91	4/8/91
Ignitability	1010	°C	>100	NA	NA	4/11/91	4/11/91
Reactive Cyanide	7.3.3.2	mg/L	ND	ND	2.5	4/10/91	4/10/91
Reactive Sulfide	7.3.4.1	mg/L	ND	ND	50.0	4/10/91	4/11/91

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

Analytical Results - Conventional Parameters
Ciba-Geigy Corporation

Client ID: EA001740
Description: Utilities Clarifier Blow Down
GSELI ID: GAT-005
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: see below
Analyzed: see below
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
Corrosivity	9040	pH	10.3	NA	NA	4/8/91	4/8/91
Ignitability	1010	°C	>100	NA	NA	4/11/91	4/11/91
Reactive Cyanide	7.3.3.2	mg/L	ND	ND	2.5	4/10/91	4/10/91
Reactive Sulfide	7.3.4.1	mg/L	ND	ND	50.0	4/10/91	4/11/91

Client ID: EA001741
Description: HCN Effluent
GSELI ID: GAT-006
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: see below
Analyzed: see below
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
Corrosivity	9040	pH	1.90	NA	NA	4/8/91	4/8/91
Ignitability	1010	°C	>100	NA	NA	4/11/91	4/11/91
Reactive Cyanide	7.3.3.2	mg/L	ND	ND	2.5	4/10/91	4/10/91
Reactive Sulfide	7.3.4.1	mg/L	ND	ND	50.0	4/10/91	4/11/91

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

Analytical Results - Conventional Parameters
Ciba-Geigy Corporation

Client ID: EA001742
Description: Spent Caustic
GSELI ID: GAT-007
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: see below
Analyzed: see below
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
Corrosivity	9040	pH	13.5	NA	NA	4/8/91	4/8/91
Ignitability	1010	°C	>100	NA	NA	4/11/91	4/11/91
Reactive Cyanide	7.3.3.2	mg/L	ND	ND	2.5	4/10/91	4/10/91
Reactive Sulfide	7.3.4.1	mg/L	ND	ND	50.0	4/10/91	4/11/91

Client ID: EA001743
Description: Dryer Bombs (GAT-008)
GSELI ID: GAT-008
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 4/4/91
Received: 4/5/91
Prepared: see below
Analyzed: see below
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
Corrosivity	9040	pH	0.0	NA	NA	4/8/91	4/8/91
Ignitability	1010	°C	>100	NA	NA	4/11/91	4/11/91
Reactive Cyanide	7.3.3.2	mg/L	ND	ND	2.5	4/10/91	4/10/91
Reactive Sulfide	7.3.4.1	mg/L	ND	ND	50.0	4/10/91	4/11/91

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

QA/QC SUMMARY
TCLP VOLATILE ORGANICS

Volatile Blank and Matrix Spike Results

Parameter	Spike Level	Units	Recovery (%)			EPA/CLP QC Limits
			Blank Spike	MS	MSD	
1,1-Dichloroethane	50/250	ug/L	114	98	100	61-145
Trichloroethane	50/250	ug/L	106	108	114	71-120
Benzene	50/250	ug/L	104	108	112	76-127
Toluene	50/250	ug/L	116	100	102	76-125
Chlorobenzene	50/250	ug/L	98	100	102	75-130

VOLATILE SURROGATE RECOVERY

Sample No.	<u>Toluene-d8</u>	<u>Bromofluorobenzene</u>	<u>1,2-Dichloroethane-d</u>
Blank	100	98	98
TCLP Blank	98	96	100
EAO01738	92	102	98
EAO01740	92	102	100
TCLP Blank Spike	98	96	96
EAO01740 MS	92	100	100
EAO01740 MSD	90	100	100
QC Limits	(88-110)	(86-115)	(76-114)

QA/QC SUMMARY
VOLATILE ORGANICS

Volatile Blank and Matrix Spike Results

Parameter	Spike Level	Units	Recovery (%)			EPA/CLP QC Limits
			Blank Spike	MS	MSD	
1,1-Dichloroethane	50	ug/L	132	109	111	61-145
Trichloroethane	50	ug/L	124	104	105	71-120
Benzene	50	ug/L	121	100	101	76-127
Toluene	50	ug/L	121	101	102	76-125
Chlorobenzene	50	ug/L	122	98	101	75-130

VOLATILE SURROGATE RECOVERY

Sample No.	Toluene-d8	Bromofluorobenzene	1,2-Dichloroethane-d4
Blank	100	98	98
Filter Blank	100	98	98
Trip Blank	98	100	100
EA001736	96	102	102
EA001739 RE	6	92	94
EA001739	14	88	101
EA001741	96	100	100
EA001742	100	98	98
EA001743	100	100	98
EA001737	92	102	100
Blank Spike	96	100	95
MS	98	101	98
MSD	98	100	94
QC Limits	(88-110)	(86-115)	(76-114)

QA/QC SUMMARY

TCLP SEMIVOLATILE ORGANICS

Semivolatile Blank and Matrix Spike Results

Parameter	Spike Level	Units	Recovery (%)			EPA/CLP QC Limits
			Blank Spike	MS	MSD	
Phenol	100/200	ug/L	72	24	23	12- 89
2-Chlorophenol	100/200	ug/L	75	29	29	27-123
1,4-Dichlorobenzene	50/100	ug/L	60	48	46	36- 97
N-Nitroso-di-n-propylamine	50/100	ug/L	74	70	76	41-116
1,2,4-Trichlorobenzene	50/100	ug/L	64	55	66	39- 98
4-Chloro-3-methylphenol	100/200	ug/L	75	73	62	23- 97
Acenaphthene	50/100	ug/L	88	94	97	46-118
4-Nitrophenol	100/200	ug/L	80	151	138	10- 80
2,4-Dinitrotoluene	50/100	ug/L	82	117	117	24- 96
Pentachlorophenol	100/200	ug/L	59	67	72	9-103
Pyrene	50/100	ug/L	82	86	86	26-127

Semivolatile Surrogate Recovery

Sample No.	Nitro-benzene-d5	2-Fluoro-biphenyl	Terphenyl-d14	Phenol-d5	2-Fluoro-phenol	2,4,6-Tri-bromophenol
Blank	79	61	85	59	57	102
TCLP Blank	106	70	104	82	82	111
EA001738	104	66	86	39	34	95
EA001740	95	59	90	61	53	94
Blank Spike	90	67	88	69	68	90
MS	95	66	92	21	13	69
MSD	105	65	90	21	13	59
QC Limits	(35-114)	(43-116)	(33-141)	(10-94)	(21-100)	(10-123)
TCLP Limits				(D-105)	(D-112)	(D-115)

QA/QC SUMMARY
SEMIVOLATILE ORGANICS

Semivolatile Blank and Matrix Spike Results

<u>Parameter</u>	<u>Spike Level</u>	<u>Units</u>	<u>Recovery (%)</u>			<u>EPA/CLP QC Limits</u>
			<u>Blank Spike</u>	<u>MS</u>	<u>MSD</u>	
Phenol	100/200	ug/L	73	71	77	12- 89
2-Chlorophenol	100/200	ug/L	74	73	80	27-123
1,4-Dichlorobenzene	50/100	ug/L	52	66	69	36- 97
N-Nitroso-di-n-propylamine	50/100	ug/L	78	71	78	41-116
1,2,4-Trichlorobenzene	50/100	ug/L	64	77	81	39- 98
4-Chloro-3-methylphenol	100/200	ug/L	82	84	83	23- 97
Acenaphthene	50/100	ug/L	100	91	93	46-118
4-Nitrophenol	100/200	ug/L	132	140	152	10- 80
2,4-Dinitrotoluene	50/100	ug/L	100	100	100	24- 96
Pentachlorophenol	100/200	ug/L	69	79	79	9-103
Pyrene	50/100	ug/L	84	77	71	26-127

Semivolatile Surrogate Recovery

<u>Sample No.</u>	<u>Nitro-benzene-d5</u>	<u>2-Fluoro-biphenyl</u>	<u>Terphenyl-d14</u>	<u>Phenol-d5</u>	<u>2-Fluoro-phenol</u>	<u>2,4,6-Tri-bromophenol</u>
Blank	79	60	83	59	60	76
EA001736	86	41	92	66	62	127
EA001737	100	61	90	76	77	127
EA001739	96	57	93	0	0	10
EA001741	118	54	111	93	91	154
EA001742	97	66	176	0	0	0
EA001743	90	63	93	59	60	95
Blank Spike	97	84	92	72	69	106
EA0017636 MS	90	60	90	68	65	121
EA0017636 MSD	90	62	83	73	75	117
QC Limits	(35-114)	(43-116)	(33-141)	(10-94)	(21-100)	(10-123)

QA/QC SUMMARY
TCLP PESTICIDES

Pesticides Blank and Matrix Spike Results

<u>Parameter</u>	<u>Spike Level</u>	<u>Units</u>	<u>Recovery (%)</u>			<u>EPA/CLP QC Limits</u>
			<u>Blank Spike</u>	<u>MS</u>	<u>MSD</u>	
Lindane	0.2/0.4	ug/L	68	99	115	56-123
Heptachlor	0.2/0.4	ug/L	94	80	79	40-131
Endrin	0.5/1.0	ug/L	89	92	95	56-121
Lindane	0.2/0.4	ug/L	75	72	78	56-123
Heptachlor	0.2/0.4	ug/L	96	73	90	40-131
Endrin	0.5/1.0	ug/L	96	100	98	56-121

Pesticides Surrogate Recovery

<u>Sample No.</u>	<u>Dibutylchlorodane</u>
Blank 1	102
Blank 2	93
TCLP Blank	94
EA001736	101
EA001737	92
EA001738	97
EA001739	83
EA001740	80
EA001741	95
EA001742	51
EA001743	94
Blank Spike 1	90
Blank Spike 2	98
MS	92
MSD	92
MS	90
MSD	94
QC Limits	(24-154)

QA/QC SUMMARY
TCLP HERBICIDES

Herbicides Blank and Matrix Spike Results

Parameter	Spike Level	Units	Recovery (%)			GSELI QC Limits
			Blank Spike	MS	MSD	
2,4-D	25/50	ug/L	109	111	123	40-150
2,4,5-TP	5/10	ug/L	94	88	99	40-150
2,4-D	25/50	ug/L	99	101	111	40-150
2,4,5-TP	5/10	ug/L	77	100	110	40-150
2,4-D	25/50	ug/L	98	--	--	40-150
2,4,5-TP	5/10	ug/L	85	--	--	40-150

Herbicides Surrogate Recovery

Sample No.	DCPA	2,4-DB
Blank 1	97	65
Blank 2	70	70
Blank 3	89	78
TCLP Blank	107	97
EA001736	102	74
EA001737	104	73
EA001738	91	80
EA001739	104	3
EA001740	108	83
EA001741	106	75
EA001742	139	22
EA001743	107	57
Blank Spike 1	102	70
Blank Spike 2	76	62
Blank Spike 3	92	80
MS	97	70
MSD	110	79
MS	84	85
MSD	95	94
QC Limits	(9-150)	(4-132)

QA/QC SUMMARY

TCLP METALS

PARAMETER	<u>Digestate Blank</u>			<u>Spike Recovery (%)</u>		<u>Replicate Precision RPD</u>
	<u>Det'n Limits</u>	<u>Units</u>	<u>Blank Conc.</u>	<u>Matrix</u>	<u>Blank</u>	
Arsenic	0.1	mg/L	ND	NA	95.4	NA
Barium	0.05	mg/L	ND	NA	89.3	0.35
Cadmium	0.01	mg/L	ND	126.0	99.4	NA
Chromium	0.05	mg/L	ND	80.5	78.9	NA
Lead	0.1	mg/L	ND	65.2	95.1	NA
Mercury	0.0002	mg/L	ND	99.0	74.0	NA
Selenium	0.1	mg/L	ND	NA	NA	NA
Silver	0.05	mg/L	ND	NA	66.8	NA

CONVENTIONAL PARAMETERS

PARAMETER	<u>Digestate Blank</u>			<u>Spike Recovery (%)</u>		<u>Replicate Precision RPD</u>
	<u>Det'n Limits</u>	<u>Units</u>	<u>Blank Conc.</u>	<u>Matrix</u>	<u>Blank</u>	
Corrosivity	NA	pH	NA	NA	100.0	2.6
Ignitability	NA	°C	NA	NA	94.4	0.0
Reactive Cyanide	2.5	mg/L	ND	NA	NA	0.0
Reactive Sulfide	50.0	mg/L	ND	NA	101.0	0.0

CIBA-GEIGY CORPORATION
ST. GABRIEL PLANT

PC# X203438

EA-001

CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES
ANALYTICAL REQUEST FORM

Sample # EA001736

Laboratory Gulf South Env. Lab
Address: 3241 E. 9th St Dr
Baton Rouge, LA

Date Collected: 4-4-91 Time: 2252 By: J
Samples 8 Containers:

Attention:
Title:

Date Received: 4/5/91 Time: 0700 By: L
Sampling Witnessed by: C. Clark

Sample Type: Water-Soil-Slugde-Other LIQUID

Requested by:

Selection Method: (Grab) Comp Preserved

Comments:

Sample Source: Sequestrene

() 129 Priority Pollutants

Asbestos (Yes) (No)

() Purgeables (VOA)
() Acid Extractables
() Base Neutrals
() Priority Pesticides/PCB's
() Priority Metals

() Ignitability
() Corrosivity
() Reactivity
() EP Toxicity
() TELP - volatiles + organics

() Pesticide Scan

() P.C.B.'s

WET CHEMISTRY

() Acidity
() Alkalinity
() Bicarbonate
() Carbonate
() Total
() Asbestos
() COLIFORM
() Fecal
() Total
() S.P.C.
() Temperature

() Fecal Strep.
() BODs
() Bromide
() Chloride
() COD
() Color
() Cyanide, T.
() Dissolved Oxy
() Flow (MGD)
() Hardness
() Oil & Grease

() Ha. Phenols
() NITROGEN
() Ammonia
() Kjeldahl
() Nitrate
() Nitrite
() Organic
() Total
() Odor
() T.O.C.
() Turb. (NTU)

() pH
() Phenols
() Sulfate
() Phosphates
() Total
() S. Solids
() Silica
() Specif. Cond.
() Surfactants
() Sulfur-Sulfate
() Tannin/Lignin
() Ortho

() Sulfide
() Solids--Total
() Total Diss.
() Total Susp.
() Vol. Diss.
() Vol. Susp.
() Fixed Diss.
() Fixed Susp.

METALS: (Non-Priority)

() Aluminum
() Antimony
() Arsenic
() Barium
() Beryllium
() Boron

() Cadmium
() Calcium
() CHROMIUM
() Total
() Hexavalent
() Cobalt

() Copper
() Iron
() Lead
() Lithium
() Magnesium
() Manganese

() Mercury
() Molybdenum
() Nickel
() Potassium
() Selenium
() Silver

() Sodium
() Strontium
() Thallium
() Tin
() Vanadium
() Zinc

Other Tests

Relinquished by: (signature)

Received by: (signature)

Date/Time
10:50 4-5-91

Relinquished by: (signature)

Received by: (signature)

Date/Time

Relinquished by: (signature)

Received by: (signature)

Date/Time

Shipped by: (signature)

Date/Time

Method of Shipment:

Received at Laboratory

Date/Time

CIBA-GEIGY CORPORATION
ST. GABRIEL PLANT

Per X223435

EA-001

CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES
ANALYTICAL REQUEST FORM

Sample # EA 001737

Laboratory Gulf South Env. Lab
Address: 1341 Elmerest Dr.
Denton Rouge LA

Date Collected: 4-4-91 Time: 036 By:
Samples 8 Containers:

Attention:
Title:

Date Received: 4/5/91 Time: 1700 By:
Sampling Witnessed by: C. Alon

Sample Type: Water-Soil-Sludge-Other LIQUID
Selection Method: Grab/Comp Preserved

Requested by:
Comments:

Sample Source: Denton. Effluent

() 129 Priority Pollutants

Asbestos (Yes) (No)

() Purgeables (VOA)
() Acid Extractables
() Base Neutrals
() Priority Pesticides/PCB's
() Priority Metals

() Ignitability
() Corrosivity
() Reactivity
() EP Toxicity
() True - volatiles + organics

() Pesticide Scan

() P.C.B.'s

WET CHEMISTRY

() Acidity
() Alkalinity
() Bicarbonate
() Carbonate
() Total
() Asbestos
() COLIFORM
() Fecal
() Total
() S.P.C.
() Temperature

() Fecal Strep.
() BOD₅
() Bromide
() Chloride
() COD
() Color
() Cyanide, T.
() Dissolved Oxy
() Flow (MGD)
() Hardness
() Oil & Grease

() Ha. Phenols
() NITROGEN
() Ammonia
() Kjeldahl
() Nitrate
() Nitrite
() Organic
() Total
() Odor
() T.O.C.
() Turb. (NTU)

() pH
() Phenols
() Sulfate
() Phosphates
() Total
() S. Solids
() Silica
() Specif. Cond.
() Surfactants
() Sulfur-Sulfate
() Tannin/Lignin
() Ortho

() Sulfide
() Solids--Total
() Total Diss.
() Total Susp.
() Vol. Diss.
() Vol. Susp.
() Fixed Diss.
() Fixed Susp.

METALS: (Non-Priority)

() Aluminum
() Antimony
() Arsenic
() Barium
() Beryllium
() Boron

() Cadmium
() Calcium
() CHROMIUM
() Total
() Hexavalent
() Cobalt

() Copper
() Iron
() Lead
() Lithium
() Magnesium
() Manganese

() Mercury
() Molybdenum
() Nickel
() Potassium
() Selenium
() Silver

() Sodium
() Strontium
() Thallium
() Tin
() Vanadium
() Zinc

Other Tests

Relinquished by: (signature) D. D. D.

Received by: (signature) Sabrina Pyle

Date/Time 4-5-91 10:50

Relinquished by: (signature)

Received by: (signature)

Date/Time

Relinquished by: (signature)

Received by: (signature)

Date/Time

Shipped by: (signature)

Date/Time

Method of Shipment:

Received at Laboratory

Date/Time

CIBA-GEIGY CORPORATION
ST. GABRIEL PLANT

PC# X25313

EA-001

CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES
ANALYTICAL REQUEST FORM

Sample # EA 001738

Laboratory Gulf South En Lab
Address: 1344 Elmcrest Dr
Baton Rouge LA

Date Collected: 4-4-91 Time: 2:58 By: []
Samples 8 Containers:

Attention:
Title:

Date Received: 4/5/91 Time: 0700 By: 1
Sampling Witnessed by: C. Adams

Sample Type: Water-Soil-Sludge-Other Liquid

Requested by:

Selection Method: Grab/Comp Preserved

Comments:

Sample Source: AUT Clarifier Underflow

Asbestos (Yes) (No)

() 129 Priority Pollutants

() Purgeables (VOA)
() Acid Extractables
() Base Neutrals
() Priority Pesticides/PCB's
() Priority Metals

() Ignitability
() Corrosivity
() Reactivity
() EP Toxicity
() TUP - volatiles and organics
() P.C.B.'s

() Pesticide Scan

WET CHEMISTRY

() Acidity
() Alkalinity
() Bicarbonate
() Carbonate
() Total
() Asbestos
() COLIFORM
() Fecal
() Total
() S.P.C.
() Temperature

() Fecal Strep.
() BOD₅
() Bromide
() Chloride
() COD
() Color
() Cyanide, T.
() Dissolved Oxy
() Flow (MGD)
() Hardness
() Oil & Grease

() Ha. Phenols
() NITROGEN
() Ammonia
() Kjeldahl
() Nitrate
() Nitrite
() Organic
() Total
() Odor
() T.O.C.
() Turb. (NTU)

() pH
() Phenols
() Sulfate
() Phosphates
() Total
() S. Solids
() Silica
() Specif. Cond.
() Surfactants
() Sulfur-Sulfate
() Tannin/Lignin
() Ortho

() Sulfide
() Solids--Total
() Total Diss.
() Total Susp.
() Vol. Diss.
() Vol. Susp.
() Fixed Diss.
() Fixed Susp.

METALS: (Non-Priority)

() Aluminum
() Antimony
() Arsenic
() Barium
() Beryllium
() Boron
() Cadmium
() Calcium
() CHROMIUM
() Total
() Hexavalent
() Cobalt

() Copper
() Iron
() Lead
() Lithium
() Magnesium
() Manganese
() Mercury
() Molybdenum
() Nickel
() Potassium
() Selenium
() Silver

() Sodium
() Strontium
() Thallium
() Tin
() Vanadium
() Zinc

Other Tests

Relinquished by: (signature)

Received by: (signature)

Date/Time 4-5-91 10:5

Relinquished by: (signature)

Received by: (signature)

Date/Time

Relinquished by: (signature)

Received by: (signature)

Date/Time

Shipped by: (signature)

Date/Time

Method of Shipment:

Received at Laboratory

Date/Time

CIBA-GEIGY CORPORATION
ST. GABRIEL PLANT

Pct X203438

EA-001

CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES
ANALYTICAL REQUEST FORM

Sample # EA 001739

Laboratory Gulf South Env. Lab.
Address: 3241 Elmcrest Dr
Indian Rocks Beach FL

Date Collected: 4-4-91 Time: 2218 By: 1
Samples 8 Containers:

Attention:
Title:

Date Received: 4/5/91 Time: 0700 By:
Sampling Witnessed by: C. G. W.

Sample Type: Water-Soil-Sludge-Other LIQUID
Selection Method: Grab/Comp Preserved
Sample Source: HCL (Dirty Acid)

Requested by:
Comments:

() 129 Priority Pollutants

Asbestos (Yes) (No)

() Purgeables (VOA)
() Acid Extractables
() Base Neutrals
() Priority Pesticides/PCB's
() Priority Metals

() Ignitability
() Corrosivity
() Reactivity
() EP Toxicity
() TCLP volatiles & organics
() P.C.B.'s

() Pesticide Scan

WET CHEMISTRY

() Acidity
() Alkalinity
() Bicarbonate
() Carbonate
() Total
() Asbestos
() COLIFORM
() Fecal
() Total
() S.P.C.
() Temperature
() Fecal Strep.
() BOD₅
() Bromide
() Chloride
() COD
() Color
() Cyanide, T.
() Dissolved Oxy
() Flow (MGD)
() Hardness
() Oil & Grease

() Ha. Phenols
() NITROGEN
() Ammonia
() Kjeldahl
() Nitrate
() Nitrite
() Organic
() Total
() Odor
() T.O.C.
() Turb. (NTU)

() pH
() Phenols
() Sulfate
() Phosphates
() Total
() S. Solids
() Silica
() Specif. Cond.
() Surfactants
() Sulfur-Sulfate
() Tannin/Lignin
() Ortho

() Sulfide

() Solids--Total
() Total Diss.
() Total Susp.
() Vol. Diss.
() Vol. Susp.
() Fixed Diss.
() Fixed Susp.

METALS: (Non-Priority)

() Aluminum
() Antimony
() Arsenic
() Barium
() Beryllium
() Boron
() Cadmium
() Calcium
() CHROMIUM
() Total
() Hexavalent
() Cobalt

() Copper
() Iron
() Lead
() Lithium
() Magnesium
() Manganese

() Mercury
() Molybdenum
() Nickel
() Potassium
() Slenium
() Silver

() Sodium
() Strontium
() Thallium
() Tin
() Vanadium
() Zinc

Other Tests

Relinquished by: (signature)

Received by: (signature) Saurina Rye

Date/Time 4-5-91 10:50

Relinquished by: (signature)

Received by: (signature)

Date/Time

Relinquished by: (signature)

Received by: (signature)

Date/Time

Shipped by: (signature)

Date/Time

Method of Shipment:

Received at Laboratory

Date/Time

CIBA-GEIGY CORPORATION
ST. GABRIEL PLANT

PC# X203438

EA-001

CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES
ANALYTICAL REQUEST FORM

Sample # EA001740

Laboratory Gulf South Encl. Lab

Date Collected: 4-4-91 Time: 2212 By:

Address: 1344 Elmerest Dr

Samples 8 Containers:

Attention: Bates Rouge LA

Date Received: 4/5/91 Time: 0700 By:

Title:

Sampling Witnessed by: C. Alvin

Sample Type: Water-Soil-Sludge-Other LIQUID

Requested by:

Selection Method: Grab Comp Preserved

Comments:

Sample Source: Utilities Clarifier

down drain

() 129 Priority Pollutants

Asbestos (Yes) (No)

() Purgeables (VOA)
() Acid Extractables
() Base Neutrals
() Priority Pesticides/PCB's
() Priority Metals

() Ignitability
() Corrosivity
() Reactivity
() EP Toxicity
() TCEP (Volatiles and organics)

() Pesticide Scan

() P.C.B.'s

WET CHEMISTRY

() Acidity
() Alkalinity
() Bicarbonate
() Carbonate
() Total
() Asbestos
() COLIFORM
() Fecal
() Total
() S.P.C.
() Temperature

() Fecal Strep.
() BOD5
() Bromide
() Chloride
() COD
() Color
() Cyanide, T.
() Dissolved Oxy
() Flow (MGD)
() Hardness
() Oil & Grease

() Ha. Phenols
() NITROGEN
() Ammonia
() Kjeldahl
() Nitrate
() Nitrite
() Organic
() Total
() Odor
() T.O.C.
() Turb. (NTU)

() pH
() Phenols
() Sulfate
() Phosphates
() Total
() S. Solids
() Silica
() Specif. Cond.
() Surfactants
() Sulfur-Sulfate
() Tannin/Lignin
() Ortho

() Sulfide
() Solids--Total
() Total Diss.
() Total Susp.
() Vol. Diss.
() Vol. Susp.
() Fixed Diss.
() Fixed Susp.

METALS: (Non-Priority)

() Aluminum
() Antimony
() Arsenic
() Barium
() Beryllium
() Boron

() Cadmium
() Calcium
() CHROMIUM
() Total
() Hexavalent
() Cobalt

() Copper
() Iron
() Lead
() Lithium
() Magnesium
() Manganese

() Mercury
() Molybdenum
() Nickel
() Potassium
() Selenium
() Silver

() Sodium
() Strontium
() Thallium
() Tin
() Vanadium
() Zinc

Other Tests

Relinquished by: (signature)

Received by: (signature)

Date/Time 4-5-91 10:50

Relinquished by: (signature)

Received by: (signature)

Date/Time

Relinquished by: (signature)

Received by: (signature)

Date/Time

Shipped by: (signature)

Date/Time

Method of Shipment:

Received at Laboratory

Date/Time

CIBA-GEIGY CORPORATION
ST. GABRIEL PLANT

PC# X203438

EA-00:

CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES
ANALYTICAL REQUEST FORM

Sample # EA 001741

Laboratory Gulf South Encl Lcb
Address: 324 Elmcrest Dr
Baton Rouge LA
Attention: _____
Title: _____
Sample Type: Water-Soil-Slugde-Other LIQUID
Selection Method: Grab/Comp Preserved
Sample Source: HCN Effluent

Date Collected: 4-4-91 Time: 2:50 By: E
Samples 8 Containers: _____

Date Received: 4/5/91 Time: 0700 By: (
Sampling Witnessed by: C. G. R. M.

Requested by: _____
Comments: _____

() 129 Priority Pollutants

() Purgeables (VOA) _____
() Acid Extractables _____
() Base Neutrals _____
() Priority Pesticides/PCB's _____
() Priority Metals _____

Asbestos (Yes) (No)

() Ignitability _____
() Corrosivity _____
() Reactivity _____
() EP Toxicity _____
() TLLP -volatiles + organics _____

() Pesticide Scan

() P.C.B.'s _____

WET CHEMISTRY

() Acidity	() Fecal Strep.	() Ha. Phenols	() pH	() Sulfide
() Alkalinity	() BOD ₅	() NITROGEN	() Phenols() Sulfate	() Solids--Total
() Bicarbonate	() Bromide	() Ammonia	() Phosphates	() Total Diss.
() Carbonate	() Chloride	() Kjeldahl	() Total	() Total Susp.
() Total	() COD	() Nitrate	() S. Solids	() Vol. Diss.
() Asbestos	() Color	() Nitrite	() Silica	() Vol. Susp.
() COLIFORM	() Cyanide, T.	() Organic	() Specif. Cond.	() Fixed Diss.
() Fecal	() Dissolved Oxy	() Total	() Surfactants	() Fixed Susp.
() Total	() Flow (MGD)	() Odor	() Sulfur-Sulfate	
() S.P.C.	() Hardness	() T.O.C.	() Tannin/Lignin	
() Temperature	() Oil & Grease	() Turb. (NTU)	() Ortho	

METALS: (Non-Priority)

() Aluminum	() Cadmium	() Copper	() Mercury	() Sodium
() Antimony	() Calcium	() Iron	() Molybdenum	() Strontium
() Arsenic	() CHROMIUM	() Lead	() Nickel	() Thallium
() Barium	() Total	() Lithium	() Potassium	() Tin
() Beryllium	() Hexavalent	() Magnesium	() Selenium	() Vanadium
() Boron	() Cobalt	() Manganese	() Silver	() Zinc

Other Tests

Relinquished by:(signature) U. W. H. L.

Received by:(signature) Salina Rye

Date/Time

4-5-91 10:50

Relinquished by:(signature) _____

Received by:(signature) _____

Date/Time

Relinquished by:(signature) _____

Received by:(signature) _____

Date/Time

Shipped by:(signature) _____

Date/Time

Method of Shipment:

Received at Laboratory _____

Date/Time

~~PC#~~ X203 ÷ 38

CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES
ANALYTICAL REQUEST FORM

Laboratory Griff. Smith Env. Lab
Address: 3241 Elmcrest Dr

Date Collected: 4-4-91 Time: 2120 By: E
 Samples 4 Containers:

Attention: _____
Title: _____

Date Received: 4/5/91 Time: 0700 By: L
Sampling Witnessed by: Adams

Sample Type: Water-Soil-Sludge-Other _____

Requested by: _____

Selection Method: Grab/Comp Preserved

Comments:

Sample Source: Spent Caustic

Comments:

() 129 Priority Pollutants

Asbestos (Yes) (No)

Purgeables (VOA) _____
Acid Extractables _____
Base Neutrals _____
Priority Pesticides/PCB's _____
Priority Metals _____

Ignitability _____
Corrosivity _____
Reactivity _____
EP Toxicity _____
TLP - volatiles + organics

() P.C.B.'s

WET CHEMISTRY

Acidity
Alkalinity
Bicarbonate
Carbonate
Total
Asbestos
COLIFORM
Fecal
Total
S.P.C.
Temperature

() Fecal Strep.
BOD₅
Bromide
Chloride
COD
Color
Cyanide, T.
Dissolved Oxy
Flow (MGD)
Hardness
Oil & Grease

() Ha. Phenols
NITROGEN
() Ammonia
Kjeldahl
Nitrate
Nitrite
Organic
Total
Odor
T.O.C.
Turb. (NTU)

{ } pH
{ } Phenols() Sulfate
{ } Phosphates
{ } Total
{ } S. Solids
{ } Silica
{ } Specif. Cond.
{ } Surfactants
{ } Sulfur-Sulfate
{ } Tannin/Lignin
{ } Ortho

() Sulfide
e () Solids--Total
Total Diss.
Total Susp.
Vola. Diss.
Vola. Susp.
Fixed Diss.
Fixed Susp.

METALS: (Non-Priority)

() Aluminum
() Antimony
() Arsenic
() Barium
() Beryllium
() Boron

{ } Cadmium
{ } Calcium
CHROMIUM
{ } Total
{ } Hexavalent
{ } Cobalt

Copper
Iron
Lead
Lithium
Magnesium
Manganese

() Mercury
() Molybdenum
() Nickel
() Potassium
() Selenium
() Silver

Sodium
Strontium
Thallium
Tin
Vanadium
Zinc

Other Tests

Relinquished by: (signature)

Received by: (signature)

Date/Time 4-5-91 10:50

Relinquished by: (signature)

Received by: (signature)

Date/Time

Relinquished by: (signature)

Received by: (signature)

Date/Time

Shipped by: (signature)

Date/Time

Method of Shipment:

Received at Laboratory

Date/Time

CIBA-GEIGY CORPORATION
ST. GABRIEL PLANT

PC: X203438

EA-001

CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES

ANALYTICAL REQUEST FORM

Sample # EA 001743

Laboratory Griff South Env. Lab

Date Collected: 4-4-91 Time: 0415 By: E

Address: 3241 Elmcrest Dr

Samples 8 Containers:

Attention: Barton House, LA

Date Received: 4/5/91 Time: 0700 By: K

Title:

Sampling Witnessed by: P. Ch...

Sample Type: Water-Soil-Sludge-Other LIQUID

Requested by:

Selection Method: Grab Comp. Preserved

Comments:

Sample Source: Drain Drains

() 129 Priority Pollutants

Asbestos (Yes) (No)

() Purgeables (VOA)
() Acid Extractables
() Base Neutrals
() Priority Pesticides/PLB's
() Priority Metals

() Ignitability
() Corrosivity
() Reactivity
() EP Toxicity
() TCLP Volatiles + Organics

() Pesticide Scan

() P.C.B.'s

WET CHEMISTRY

() Acidity
() Alkalinity
() Bicarbonate
() Carbonate
() Total
() Asbestos
() COLIFORM
() Fecal
() Total
() S.P.C.
() Temperature

() Fecal Strep.
() BODs
() Bromide
() Chloride
() COD
() Color
() Cyanide, T.
() Dissolved Oxy
() Flow (MGD)
() Hardness
() Oil & Grease

() Ha. Phenols
() NITROGEN
() Ammonia
() Kjeldahl
() Nitrate
() Nitrite
() Organic
() Total
() Odor
() T.O.C.
() Turb. (NTU)

() pH
() Phenols
() Sulfate
() Phosphates
() Total
() S. Solids
() Silica
() Specif. Cond.
() Surfactants
() Sulfur-Sulfate
() Tannin/Lignin
() Ortho

() Sulfide
() Solids--Total
() Total Diss.
() Total Susp.
() Vol. Diss.
() Vol. Susp.
() Fixed Diss.
() Fixed Susp.

METALS: (Non-Priority)

() Aluminum
() Antimony
() Arsenic
() Barium
() Beryllium
() Boron

() Cadmium
() Calcium
() CHROMIUM
() Total
() Hexavalent
() Cobalt

() Copper
() Iron
() Lead
() Lithium
() Magnesium
() Manganese

() Mercury
() Molybdenum
() Nickel
() Potassium
() Selenium
() Silver

() Sodium
() Strontium
() Thallium
() Tin
() Vanadium
() Zinc

Other Tests

Relinquished by: (signature)

Received by: (signature)

Date/Time 4-5-91 10 50

Relinquished by: (signature)

Received by: (signature)

Date/Time

Relinquished by: (signature)

Received by: (signature)

Date/Time

Shipped by: (signature)

Date/Time

Method of Shipment:

Received at Laboratory

Date/Time

NATIONAL EXPRESS LABORATORIES, INC.

NATEX

Gulf South Environmental Laboratory, Inc.
6801 Press Drive—East Building
New Orleans, LA 70126
504/ 283-4223
FAX 504/ 283-3625

March 28, 1991

Mr. Bill Davis
Ciba-Geigy Corporation
P.O. Box 11
St. Gabriel, LA 70776

Subject: RECAL II Code 1821
Purchase Order No. X187912
GSELI Episode FVS

Dear Mr. Davis:

Enclosed please find the analytical results for the sample received by Gulf South Environmental Laboratory on March 4, 1991.

This report contains a brief discussion of the analytical methodologies employed as well as a summary of the quality control data associated with the analyses, and copies of your chain of custody documentation.

If you require any additional information concerning these data or the report, or would like to make any suggestions and/or recommendations regarding our services, please contact one of our Client Services Representatives listed below:

Mr. Bill Deckelmann, Manager, Ext. 243
Ms. Karen Brandt, Ext. 224
Ms. Charmaine LeBlanc, Ext. 257

Sincerely,



Cindy Olavesen
Report Center Manager

CO/jj
Enclosure

Analytical Methodology

The Ciba-Geigy Corporation sample received on March 4, 1991 was analyzed for TCLP volatile and semivolatile organics, pesticides, herbicides, and metals; volatile and semivolatile organics, metals and EP-Toxicity metals and conventional parameters. Specific methods employed for the analyses are indicated.

- TCLP Extraction - Method 40CFR268
- TCLP Volatile Organics - Method 8240
- TCLP Semivolatile Organics - Method 8270
- Volatile Organics - Method 8240
- Semivolatile Organics - Method 8270
- TCLP Pesticides - Method 8080
- TCLP Herbicides - Method 8150
- Metals - (ICP, GFAA, CV)
- EP-Toxicity Metals
 - Extraction - Method 1310
 - Analysis - Method 6010/7470
- Conventional Parameters
 - Hexavalent Chromium - Method SM 312B
 - Total Kjeldahl Nitrogen (TKN) - Method 351.3

Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) measures are employed to insure the quality and define the accuracy of analytical data. The QA/QC measures employed with these analyses are summarized below:

Organics Analyses (Volatile and Semivolatile)

Instrument calibration - Instrument calibration is performed in accordance with EPA contract laboratory protocols. Instrument recalibration is performed every 12 hours.

Blank analysis - Method blanks are analyzed at the frequency specified by CLP protocols. Method blanks demonstrate the level of background (laboratory) contamination. Blank data are presented on the results page along with the sample data.

Surrogate spike analysis - Each sample is fortified with recovery (surrogate) standards prior to extraction or purging. The recovery of the surrogate standards is a measure of the efficiency of the analysis. A summary of surrogate recovery data is presented in the QA/QC Summary.

Matrix spike/duplicate spike/blank spike - Specific analytes are added to selected samples prior to extraction or purging. The results of the matrix spike/duplicate spike analyses are a measure of the precision and accuracy of the analysis. The blank spike provides method performance data in the absence of matrix effects. Spike data are included in the QA/QC Summary.

Pesticides/Herbicides

Instrument calibration - Instrument calibration is performed in accordance with method protocols. Instrument calibration is verified every 10 samples.

Blank analysis - Method blanks are analyzed at the frequency specified by method protocols. Method blanks demonstrate the level of background (laboratory) contamination. Blank data are presented on the results page along with the sample data.

Surrogate spike analysis - Each sample is fortified with recovery (surrogate) standards prior to the extraction. The recovery of the surrogate standards is a measure of the efficiency of the analysis. A summary of surrogate recovery data is presented in the QA/QC Summary.

Matrix spike/duplicate spike/blank spike - Specific analytes are added to selected samples prior to the extraction. The results of the matrix spike/duplicate spike analyses are a measure of the precision and accuracy of the analysis. The blank spike provides method performance data in the absence of matrix effects. Spike data are included in the QA/QC Summary.

Metals Analysis

Instrument calibration - Instrument calibration is performed in accordance with EPA contract laboratory protocols. Calibration verification is conducted every two hours or every ten samples, whichever is more frequent.

Blank analysis - A method blank is prepared with each batch of samples digested. The method blank defines the level of background (laboratory) contamination.

Duplicate analysis - Selected samples are prepared and analyzed in duplicate to define the precision of the results.

Matrix spike analysis - Each of the metals of interest are added to selected samples prior to sample preparation. The results of spike analyses define the accuracy of the results. Blank, duplicate and matrix spike results for metals analyses are summarized in the QA/QC Summary.

Conventional Parameters

Calibration - Calibration for each of the specific conventional analyses is performed according to the specific method utilized.

Replicate analyses - QC for the conventional analyses was limited to replicate analyses to define precision (reproducibility) of the analyses.

Check Samples - Known check samples for the conventional analyses also analyzed to verify calibration and to measure the efficiency of each method.

Analytical Results - TCLP Volatile Organics by EPA Method 8260
Ciba-Geigy Corporation

Client ID: #1821
Description: RECAL II
GSELI ID: FVS-001
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 3/4/91
Received: 3/4/91
Leached & Prepared: 3/7.11/91
Analyzed: 3/11/91
Percent Moisture: NA

CAS No.	P A R A M E T E R	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
71-43-2	Benzene	ND	ND	ND	5
56-23-5	Carbon Tetrachloride	ND	ND	ND	5
108-90-7	Chlorobenzene	ND	ND	ND	5
67-66-3	Chloroform	14	ND	ND	5
107-06-2	1,2-Dichloroethane	ND	ND	ND	5
75-35-4	1,1-Dichloroethylene	ND	ND	ND	5
78-93-3	Methyl Ethyl Ketone	ND	11	11	10
127-18-4	Tetrachloroethylene	ND	ND	ND	5
79-01-6	Trichloroethylene	ND	ND	ND	5
75-01-4	Vinyl Chloride	ND	ND	ND	10

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

Analytical Results - TCLP Semivolatile Organics by Method 8270
Ciba-Geigy Corporation

Client ID: #1821
 Description: RECAL II
 GSELI ID: FVS-001
 Matrix: Waste
 Wet/Dry Basis: NA

(1) Collected: 3/4/91
 Received: 3/4/91
 Leached & Prepared: 3/6,8/91
 Analyzed: 3/12/91
 Percent Moisture: NA

CAS No.	Parameter	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
<u>BASE/NEUTRAL COMPOUNDS</u>					
106-46-7	1,4-Dichlorobenzene	ND	ND	ND	10
121-14-2	2,4-Dinitrotoluene	ND	ND	ND	10
118-74-1	Hexachlorobenzene	ND	ND	ND	10
87-68-3	Hexachlorobutadiene	ND	ND	ND	10
67-72-1	Hexachloroethane	ND	ND	ND	10
98-95-3	Nitrobenzene	ND	ND	ND	10
110-86-1	Pyridine	ND	ND	ND	10
<u>ACID COMPOUNDS</u>					
95-48-7	2-Methylphenol (o-Cresol)	ND	ND	ND	10
106-44-5	(2) 4-Methylphenol (p-Cresol)	ND	ND	ND	10
108-39-4	(2) 3-Methylphenol (m-Cresol)	ND	ND	ND	10
87-86-5	Pentachlorophenol	ND	ND	ND	50
95-95-4	2,4,5-Trichlorophenol	ND	ND	ND	50
88-06-2	2,4,6-Trichlorophenol	ND	ND	ND	10

ND-Not Detected at or above the detection limit stated.

(1) Collection date from chain-of-custody.

(2) These two isomers coelute under the conditions used for the analyses; therefore the precise isomer in the sample cannot be determined. Any results are being arbitrarily reported as 4-methylphenol.

Analytical Results - TCLP Pesticides by Method 8080
Ciba-Geigy Corporation

Client ID: #1821
Description: RECAL II
GSELI ID: FVS-001
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 3/4/91
Received: 3/4/91
Leached & Prepared: 3/7/91
Analyzed: 3/12/91
Percent Moisture: NA

Wet/Dry Basis: NA		Concentration, ug/L (ppb)			
CAS No.	Parameter	Sample	TCLP Blank	Lab Blank	Detection Limit
PESTICIDES					
72-20-8	Endrin	ND	ND	ND	0.1
58-89-9	Lindane	ND	ND	ND	0.05
57-74-9	Chlordane	ND	ND	ND	0.1
76-44-8	Heptachlor	ND	ND	ND	0.05
1024-57-3	Heptachlor Epoxide	ND	ND	ND	0.1
72-43-5	Methoxychlor	ND	ND	ND	0.5
8001-35-2	Toxaphene	ND	ND	ND	1.0

Analytical Results - TCLP Herbicides by Method 8150

Client ID: #1821
Description: RECAL II
GSELI ID: FVS-001
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 3/4/91
Received: 3/4/91
Leached & Prepared: 3/7/91
Analyzed: 3/13/91
Percent Moisture: NA

Wet/Dry Basis: NA					
CAS No.	PARAMETER	Sample	Concentration, ug/L (ppb)		
			TCLP Blank	Lab Blank	Detection Limit
HERBICIDES					
94-75-7	2,4-D	ND	ND	ND	12
93-72-1	2,4,5-TP	ND	ND	ND	1.7

ND-Not Detected at or above the detection limit stated.
(1) Collection date from the chain-of-custody.

Analytical Results - TCLP Metals
Ciba-Geigy Corporation

Client ID: #1821
Description: RECAL II
GSELI ID: FVS-001
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 3/4/91
Received: 3/4/91
Leached & Prepared: 3/6/91
Analyzed: 3/6, 19, 22/91
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>
Arsenic	6010	mg/L	ND	ND	0.1
Barium	6010	mg/L	0.39	ND	0.05
Cadmium	6010	mg/L	ND	ND	0.01
Chromium	6010	mg/L	ND	ND	0.05
Lead	6010	mg/L	ND	ND	0.1
Mercury	7470	mg/L	ND	ND	0.0002
Selenium	6010	mg/L	ND	ND	0.1
Silver	6010	mg/L	ND	ND	0.05

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

Analytical Results - EP-Toxicity Metals
Ciba-Geigy Corporation

Client ID: #1821
Description: RECAL II
GSELI ID: FVS-001
Matrix: Waste
Wet/Dry Basis: NA

(1) Collected: 3/4/91
Received: 3/4/91
Prepared: 3/6/91
Analyzed: 3/6.19/91
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>
Extraction	1310				
Arsenic	6010	ng/L	0.12	ND	0.1
Barium	6010	ng/L	0.24	ND	0.03
Cadmium	6010	ng/L	ND	ND	0.01
Chromium	6010	ng/L	ND	ND	0.03
Lead	6010	ng/L	ND	ND	0.1
Mercury	7470	ng/L	ND	ND	0.0002
Selenium	6010	ng/L	0.10	ND	0.1
Silver	6010	ng/L	ND	ND	0.03

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

Analytical Results - Metals
Ciba-Geigy Corporation

Client ID: #1821
Description: RECAL II
GSELI ID: FVS-001
Matrix: Waste
Wet/Dry Basis: Wet

(1) Collected: 3/4/91
Received: 3/4/91
Prepared: 3/6/91
Analyzed: 3/6,7,14/91
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>
Digestion	GFAA & ICP 3050				
Arsenic	7060	mg/kg	8.10	ND	0.3
Barium	6010	mg/kg	135.0	ND	1.3
Cadmium	6010	mg/kg	1.20	ND	0.3
Chromium	6010	mg/kg	14.5	ND	0.7
Copper	6010	mg/kg	6.90	ND	1.3
Lead	7421	mg/kg	2.94	ND	0.2
Mercury	7471	mg/kg	ND	ND	0.1
Nickel	6010	mg/kg	32.8	ND	2.0
Selenium	7740	mg/kg	ND	ND	0.3
Silver	6010	mg/kg	ND	ND	0.7
Zinc	6010	mg/kg	145.0	ND	1.3

ND-Not Detected at or above the detection limit stated.
(1) Collection data from chain-of-custody.

**Analytical Results - Conventional Parameters
Ciba-Geigy Corporation**

Client ID: #1821
Description: RECAL II
GSELI ID: FVS-001
Matrix: Waste
Wet/Dry Basis: Wet

(1) Collected: 3/4/91
Received: 3/4/91
Prepared: See Below
Analyzed: See Below
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection Limit</u>	<u>Date Prepared</u>	<u>Date Analyzed</u>
Hexavalent Chromium	312B	mg/kg	1.32	ND	0.2	3/6/91	3/6/91
TKN	351.3	mg/kg	396.0	ND	250.0	3/11/91	3/12/91

ND-Not Detected at or above the detection limit stated.
(1) Collection date from chain-of-custody.

QA/QC SUMMARY
TCLP VOLATILE ORGANICS

TCLP Volatile Blank and Matrix Spike Results

Parameter	Spike Level	Units	Recovery (%)			EPA/CLP QC Limits
			Blank Spike	MS	MSD	
1,1-Dichloroethene	50	ug/L	106	98	102	61-145
Trichloroethene	50	ug/L	98	102	108	71-120
Benzene	50	ug/L	98	104	106	76-127
Toluene	50	ug/L	96	98	102	76-125
Chlorobenzene	50	ug/L	96	102	104	75-130

TCLP VOLATILE SURROGATE RECOVERY

Sample No.	<u>Toluene-d8</u>	<u>Bromofluorobenzene</u>	<u>1,2-Dichloroethane-d4</u>
Blank	100	96	96
TCLP Blank	100	100	100
#1821	102	96	100
#1821 MS	98	94	100
#1821 MSD	100	96	100
Blank Spike	102	96	100
QC Limits	(88-110)	(86-115)	(76-114)

QA/QC SUMMARY
TCLP SEMIVOLATILE ORGANICS

TCLP Semivolatile Matrix Spike Results

Parameter	Spike Level	Units	Recovery (%)		EPA/CLP QC Limits
			MS	MSD	
Phenol	200	ug/L	87	80	12- 89
2-Chlorophenol	200	ug/L	93	87	27-123
1,4-Dichlorobenzene	100	ug/L	62	57	36- 97
N-Nitroso-di-n-propylamine	100	ug/L	77	74	41-116
1,2,4-Trichlorobenzene	100	ug/L	74	73	39- 98
4-Chloro-3-methylphenol	100	ug/L	100	97	23- 97
Acenaphthene	200	ug/L	107	107	46-118
4-Nitrophenol	100	ug/L	84	85	10- 80
2,4-Dinitrotoluene	100	ug/L	101	99	24- 96
Pentachlorophenol	200	ug/L	83	80	9-103
Pyrene	100	ug/L	82	82	26-127

TCLP Semivolatile Blank Spike Results

Parameter	Spike Level	Units	Recovery (%)		EPA/CLP
			Blank	Spike	QC
					Limits
Phenol	100	ug/L	71		12- 89
2-Chlorophenol	100	ug/L	79		27-123
1,4-Dichlorobenzene	50	ug/L	52		36- 97
N-Nitroso-di-n-propylamine	50	ug/L	68		41-116
1,2,4-Trichlorobenzene	50	ug/L	64		39- 98
4-Chloro-3-methylphenol	100	ug/L	76		23- 97
Acenaphthene	50	ug/L	90		46-118
4-Nitrophenol	100	ug/L	70		10- 80
2,4-Dinitrotoluene	50	ug/L	82		24- 96
Pentachlorophenol	100	ug/L	69		9-103
Pyrene	50	ug/L	72		26-127

QA/QC SUMMARY

TCLP SEMIVOLATILE ORGANICS

Semivolatile Surrogate Recovery

<u>Sample No.</u>	<u>Nitro- benzene-d5</u>	<u>2-Fluoro- biphenyl</u>	<u>Terphenyl-d14</u>	<u>Phenol-d5</u>	<u>2-Fluoro- phenol</u>	<u>2,4,6-Tri- bromophenol</u>
Blank	74	67	71	56	47	79
TCLP Blank	82	67	70	60	62	85
#1821	89	73	66	39	56	47
Blank Spike	76	72	78	58	51	93
MS	100	83	88	73	68	116
MSD	98	82	86	69	63	116
QC Limits	(35-114)	(43-116)	(33-141)	(10-94)	(21-100)	(10-123)
TCLP Limits				(D-105)	(D-112)	(D-115)

QA/QC SUMMARY
TCLE PESTICIDES

TCLE Pesticides Blank and Matrix Spike Results

PARAMETER	Spike Level	Units	Recovery (%)			GSELI QC Limits
			Blank Spike	MS	MSD	
Lindane	0.2	ug/L	83	89	89	56-123
Heptachlor	0.2	ug/L	79	82	85	40-131
Endrin	0.5	ug/L	105	106	105	56-121

TCLE Pesticides Surrogate Recovery

<u>Sample No.</u>	<u>Dibutylchlorodane</u>
Blank	116
#1821	112
Blank Spike	116
MS	115
MSD	115
QC Limits	(20-154)

QA/QC SUMMARY

TCLP METALS

PARAMETER	<u>Digestate Blank</u>			<u>Spike Recovery (%)</u>		<u>Limits</u>	<u>Replicate Precision RPD</u>
	<u>Det'n Limits</u>	<u>Units</u>	<u>Blank Conc.</u>	<u>Matrix</u>	<u>Blank</u>		
Arsenic	0.1	mg/L	ND	61.0	107.0	75-125	NA
Barium	0.05	mg/L	ND	79.4	86.0	75-125	1.8
Cadmium	0.01	mg/L	ND	83.0	NA	75-125	NA
Chromium	0.05	mg/L	ND	81.2	98.5	75-125	NA
Lead	0.1	mg/L	ND	80.0	NA	75-125	NA
Mercury	0.0002	mg/L	ND	92.0	82.0	75-125	NA
Selenium	0.1	mg/L	ND	NA	NA	75-125	NA
Silver	0.05	mg/L	ND	NA	NA	75-125	NA

QA/QC SUMMARY
EP-TOXICITY METALS

PARAMETER	Digestate Blank			Spike Recovery (%)		Replicate Precision RPD
	Det'n Limits	Units	Blank Conc.	Matrix	Blank	
Arsenic	0.1	ng/L	ND	85.4	74.0	NA
Barium	0.05	ng/L	ND	75.0	89.8	8.0
Cadmium	0.01	ng/L	ND	NA	93.0	NA
Chromium	0.05	ng/L	ND	82.0	89.4	NA
Lead	0.1	ng/L	ND	NA	NA	NA
Mercury	0.0002	ng/L	ND	92.0	82.0	NA
Selenium	0.1	ng/L	ND	NA	169.0	0.5
Silver	0.05	ng/L	ND	NA	NA	NA

QA/QC SUMMARY

METALS

SOIL

PARAMETER	<u>Digestate Blank</u>		Blank Conc.	<u>Spike Recovery</u>		Matrix (%)	<u>Replicate Precision</u>
	<u>Det'n Limits</u>	<u>Units</u>		<u>Blank</u>	<u>Limits</u>		<u>RPD</u>
Arsenic	0.3	mg/kg	ND	196.0	76-330	NA	NA
Barium	1.3	mg/kg	ND	192.0	176-272	61.9	3.8
Cadium	0.3	mg/kg	ND	61.4	44-86	77.8	15.3
Chromium	0.7	mg/kg	ND	45.4	39-63	62.9	1.4
Copper	1.3	mg/kg	ND	191.0	172-267	88.1	2.9
Lead	0.2	mg/kg	ND	NA	41-99	NA	5.3
Mercury	0.1	mg/kg	ND	4.84	2.8-8.2	95.0	NA
Nickel	2.0	mg/kg	ND	191.0	164-270	71.0	6.8
Selenium	0.3	mg/kg	ND	12.2	5.5-14	116.0	NA
Silver	0.7	mg/kg	ND	72.1	0-95	NA	NA
Zinc	1.3	mg/kg	ND	325.0	253-386	41.1	7.5

QA/QC SUMMARY
CONVENTIONAL PARAMETERS

PARAMETER	<u>Digestate Blank</u>			<u>Spike</u>		<u>Replicate Precision RPD</u>
	<u>Det'n Limits</u>	<u>Units</u>	<u>Blank Conc.</u>	<u>Recovery (%)</u>	<u>Matrix Blank</u>	
Hexavalent Chromium	0.2	mg/kg	ND	83.0	96.3	0.0
TKN	250.0	mg/kg	ND	98.8	102.0	0.0

P.O. # X 187912

CIBA-GEIGY CORPORATION
ST. GABRIEL PLANT

Rec'd II.

Code 1821

EA-001

CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES
ANALYTICAL REQUEST FORMSample # Laboratory GSELAddress: N20.Date Collected: 3-1-91 Time: By: B.D.Samples 1 Containers: Attention: Keith RhaderDate Received: Time: By: Title: Sampling Witnessed by: Sample Type: Water-Soil-Sludge-OtherRequested by: Bill DavisSelection Method: Grab/Comp PreservedComments: Results to Bill DavisSample Source: Rec'd II Code 1821

() 129 Priority Pollutants

Asbestos (Yes) (No)

() Purgeables (VOA)

() Acid Extractables

() Base Neutrals

() Priority Pesticides/PCB's

() Priority Metals

() Ignitability

() Corrosivity

() Reactivity

() EP Toxicity For Priority Metals

() Pesticide Scan

() P.C.B.'s

WET CHEMISTRY

Analyses per Downcast

QB03-01-9104

() Acidity

() Alkalinity

() Carbonate

() Total

() Asbestos

() COLIFORM

() Fecal

() Total

() S.P.C.

() Temperature

() Fecal Strep.

() BOD5

() Bromide

() Chloride

() COD

() Color

() Cyanide, T.

() Dissolved Oxy

() Flow (MGD)

() Hardness

() Oil & Grease

() Ha. Phenols

() NITROGEN

() Ammonia

() Kjeldahl N

() Nitrate

() Nitrite

() Organic

() Total

() Odor

() T.O.C.

() Turb. (NTU)

() pH

() Phenols()

() Sulfate

() Phosphates

() Total

() S. Solids

() Silica

() Specif. Cond.

() Surfactants

() Sulfur-Sulfate

() Tannin/Lignin

() Ortho

() Sulfide

() Solids--Total

() Total Diss.

() Total Susp.

() Vola. Diss.

() Vola. Susp.

() Fixed Diss.

() Fixed Susp.

METALS: (Non-Priority) Total Metals on as is Basis

() Aluminum

() Antimony

() Arsenic

() Barium

() Beryllium

() Boron

() Cadmium

() Calcium

() CHROMIUM

() Total

() Hexavalent

() Cobalt

() Copper

() Iron

() Lead

() Lithium

() Magnesium

() Manganese

() Mercury

() Molybdenum

() Nickel

() Potassium

() Selenium

() Silver

() Sodium

() Strontium

() Thallium

() Tin

() Vanadium

() Zinc

Other Tests

Relinquished by: (signature)

Received by: (signature)

Date/Time 3/4/91 1435

Relinquished by: (signature)

Received by: (signature)

Date/Time

Relinquished by: (signature)

Received by: (signature)

Date/Time

Relinquished by: (signature)

Date/Time

Method of Shipment:

Received at Laboratory

Date/Time

NATIONAL EXPRESS LABORATORIES, INC.

NATEX

Gulf South Environmental Laboratory, Inc.
6801 Press Drive—East Building
New Orleans LA 70126
(504) 283-4723
FAX (504) 283-3625

April 23, 1991

Richard Boudreau
Ciba-Geigy Corporation
P.O. Box 11
St. Gabriel, LA 70776

Subject: REGAL II
Purchase Order No. X203438
GSELI Episode GBK

Dear Mr. Boudreau:

Enclosed please find the analytical results for the sample received by Gulf South Environmental Laboratory on April 10, 1991.

This report contains a brief discussion of the analytical methodologies employed as well as a summary of the quality control data associated with the analyses, and copies of your chain of custody documentation.

If you require any additional information concerning these data or the report, or would like to make any suggestions and/or recommendations regarding our services, please contact our Client Services Representative listed below:

Mr. Bill Deckelmann, Manager, Ext. 243

Sincerely,

Cindy Olavesen

Cindy Olavesen
Report Center Manager

CO/jj
Enclosure

Analytical Methodology

The Ciba-Geigy Corporation sample received on April 10, 1991 was analyzed for conventional parameters. Specific methods employed for the analyses are indicated.

--Conventional Parameters

Reactive Cyanide - Method 7.3.3.2

Reactive Sulfide - Method 7.3.4.1

Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) measures are employed to insure the quality and define the accuracy of analytical data. The QA/QC measures employed with these analyses are summarized below:

Conventional Parameters

Calibration - Calibration for each of the specific conventional analyses is performed according to the specific method utilized.

Replicate analyses - QC for the conventional analyses was limited to replicate analyses to define precision (reproducibility) of the analyses.

Check Samples - Known check samples for the conventional analyses also analyzed to verify calibration and to measure the efficiency of each method.

Analytical Results - Conventional Parameters
Ciba-Geigy Corporation

Client ID: CODE 1905-04
Description: RECALL II CODE 1905-04
GSELI ID: GBK-001
Matrix: Other (Solid)
Wet/Dry Basis: Wet

(1) Collected: 4/6/91
Received: 4/10/91
Prepared: See Below
Analyzed: See Below
Percent Moisture: NA

<u>Parameter</u>	<u>Method</u>	<u>Units</u>	<u>Sample</u>	<u>Blank</u>	<u>Detection</u> <u>Limit</u>	<u>Date</u> <u>Prepared</u>	<u>Date</u> <u>Analyzed</u>
Reactive Cyanide	7.3.3.2	mg/kg	ND	ND	2.5	4/19/91	4/19/91
Reactive Sulfide	7.3.4.1	mg/kg	ND	ND	50.0	4/19/91	4/19/91

ND-Not Detected at or above the detection limit stated.

(1) Collection data from chain-of-custody.

QA/QC SUMMARY
CONVENTIONAL PARAMETERS

PARAMETER	<u>Digestate Blank</u>		Blank Conc.	<u>Spike Recovery (%)</u>		<u>Replicate Precision RPD</u>
	<u>Det'n Limits</u>	<u>Units</u>		<u>Matrix</u>	<u>Blank</u>	
Reactive Cyanide	2.5	mg/kg	ND	NA	17.9	NA
Reactive Sulfide	50.0	mg/kg	ND	NA	86.2	NA

PO # X203438

CIBA-GEIGY CORPORATION
ST. GABRIEL PLANTRecal II
CODE 1905-04
EA-00CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES
ANALYTICAL REQUEST FORM

Sample # _____

Laboratory GSEL
Address: N.D.Date Collected: 4-8-91 Time: _____ By: _____
Samples 1 Containers: 1Attention: Keith Rhodes
Title: _____Date Received: _____ Time: _____ By: _____
Sampling Witnessed by: _____Sample Type: Water-Soil-Sludge-Other _____
Selection Method: Grab/Comp Preserved _____Requested by: RICHARD BONDREAU
Comments: SEND RESULTS TO RICHARD BONDREAUSample Source: Recal II CODE 1905-04

() 129 Priority Pollutants

Asbestos (Yes) (No)

() Purgeables (VOA) _____
() Acid Extractables _____
() Base Neutrals _____
() Priority Pesticides/PCB's _____
() Priority Metals _____() Ignitability _____
() Corrosivity _____
() Reactivity _____
() EP Toxicity _____

() Pesticide Scan _____

() P.C.B.'s _____

WET CHEMISTRY

() Acidity _____
() Alkalinity _____
() Bicarbonate _____
() Carbonate _____
() Total _____
() Asbestos _____
() COLIFORM _____
() Fecal _____
() Total _____
() S.P.C. _____
() Temperature _____() Fecal Strep. _____
() BODs _____
() Bromide _____
() Chloride _____
() COD _____
() Color _____
() Cyanide, T. _____
() Dissolved Oxy _____
() Flow (MGD) _____
() Hardness _____
() Oil & Grease _____() Ha. Phenols _____
() NITROGEN _____
() Ammonia _____
() Kjeldahl _____
() Nitrate _____
() Nitrite _____
() Organic _____
() Total _____
() Odor _____
() T.O.C. _____
() Turb. (NTU) _____() pH _____
() Phenols _____
() Sulfate _____
() Phosphates _____
() Total _____
() S. Solids _____
() Silica _____
() Specif. Cond. _____
() Surfactants _____
() Sulfur-Sulfate _____
() Tannin/Lignin _____
() Ortho _____() Sulfide _____
() Solids--Total _____
() Total Diss. _____
() Total Susp. _____
() Vol. Diss. _____
() Vol. Susp. _____
() Fixed Diss. _____
() Fixed Susp. _____

METALS: (Non-Priority)

() Aluminum _____
() Antimony _____
() Arsenic _____
() Barium _____
() Beryllium _____
() Boron _____() Cadmium _____
() Calcium _____
() CHROMIUM _____
() Total _____
() Hexavalent _____
() Cobalt _____() Copper _____
() Iron _____
() Lead _____
() Lithium _____
() Magnesium _____
() Maganese _____() Mercury _____
() Molybdenum _____
() Nickel _____
() Potassium _____
() Slenium _____
() Silver _____() Sodium _____
() Strontium _____
() Thallium _____
() Tin _____
() Vanadium _____
() Zinc _____

Other Tests

Relinquished by: (signature) _____

Received by: (signature) _____

Date/Time 4/10/91 23

Relinquished by: (signature) _____

Received by: (signature) _____

Date/Time _____

Relinquished by: (signature) _____

Received by: (signature) _____

Date/Time _____

Shipped by: (signature) _____

Date/Time _____

Method of Shipment: _____

Received at Laboratory _____

Date/Time _____



ENVIRONMENTAL LABORATORIES, INC.

DALLAS
BATON ROUGE, L.
[804]-928.

Table 1

TOXICITY CHARACTERISTIC CONTAMINANTS

Page 1 of .

EPL Sample NO. 74236

Service to: Ciba Geigy

Address

St. Gabriel, LA

Sample I.D.: Lime Sludge

Sample type: Water Soil Sludge Other

Date Collected: 10/20/86 BY: TJL TIME

Date Received: 10/23/86 BY: HEC TIME

VOA GC/MS Analysis Date: 10/30/86

BNA GC/MS Analysis Date: 11/12/86

GC/ECD Analysis Date: 10/30/86

Sample Volume or Weight: 20ml.

CAS Number	Compound Name	Analysis Method	MDL ug/kg (ppb)	Concentration (ug/l or ug/kg)
1. 107-13-1	Acrylonitrile	EPA 624	100	< 100
2. 71-43-2	Benzene	EPA 624	10	< 10
3. 111-44-4	Bis(2-Chloroethyl ether)	EPA 624	10	< 10
4. 75-15-0	Carbon Disulfide	EPA 624	10	< 10
5. 56-23-5	Carbon Tetrachloride	EPA 624	10	< 10
6. 108-90-7	Chlorobenzene	EPA 624	10	< 10
7. 67-66-3	Chloroform	EPA 624	10	< 10
8. 107-06-2	1, 2 - Dichloroethane	EPA 624	10	< 10
9. 75-35-4	1, 1 - Dichloroethylene	EPA 624	10	< 10
10. 75-09-2	Methylene Chloride	EPA 624	10	< 10
11. 78-93-3	Methyl Ethyl Ketone	EPA 624	10	< 10
12. 630-20-6	1, 1, 1, 2 - Tetrachloroethane	EPA 624	10	< 10
13. 79-34-5	1, 1, 2, 2 - Tetrachloroethane	EPA 624	10	< 10
14. 127-18-4	Tetrachloroethylene	EPA 624	10	< 10
15. 108-80-3	Toluene	EPA 624	10	< 10
16. 71-55-6	1, 1, 1 - Trichloroethane	EPA 624	10	< 10
17. 79-00-5	1, 1, 2 - Trichloroethane	EPA 624	10	< 10
18. 79-01-6	Trichloroethylene	EPA 624	10	< 10
19. 75-01-4	Vinyl Chloride	EPA 624	10	< 10
20. 78-83-1	Isobutanol	EPA 624	100	< 100
21. 110-86-1	Pyridine	EPA 624	100	< 100
22. 95-48-7	O - Cresol	EPA 625	25	< 25
23. 108-39-4	M - Cresol	EPA 625	25	< 25
24. 106-44-5	p - Cresol	EPA 625	25	< 25
25. 95-50-1	1, 2 - Dichlorobenzene	EPA 625	10	< 10
26. 106-46-7	1, 4 - Dichlorobenzene	EPA 625	10	< 10
27. 121-14-2	2, 4 - Dinitrotoluene	EPA 625	10	< 10
28. 118-74-1	Hexachlorobenzene	EPA 625	10	< 10
29. 87-68-3	Hexachlorobutadiene	EPA 625	10	< 10
30. 67-72-1	Hexachlorocyclohexane	EPA 625	10	< 10

CAS Number	Compound Name	ANALYSIS METHOD	MDL ug/kg (PPb)	Concentration (ug/l or ug/kg)
31 98-95-3	Nitrobenzene	EPA 625	10	< 10
32 87-86-5	Pentachlorophenol	EPA 625	25	< 25
33 108-95-2	Phenol	EPA 625	25	< 25
34 58-90-2	2, 3, 4, 5 - Tetrachlorophenol	EPA 625	25	< 25
35 95-95-4	2, 4, 5 - Trichlorophenol	EPA 625	25	< 25
36 88-06-2	2, 4, 6 - Trichlorophenol	EPA 625	25	< 25
37 7-74-9	Chlordane	EPA 608	5	< 5
38 94-73-7	2, 4 - D	EPA 615	100	< 100
39 72-20-8	Endrin	EPA 608	0.2	< .2
40 76-44-8	Heptachlor	EPA 608	0.1	< .1
41 58-89-9	Lindane	EPA 608	4.0	< 4
42 72-43-5	Methoxychlor	EPA 608	10	< 10
43 8001-35-2	Toxaphene	EPA 608	5	< 5
44 93-76-5	2, 4, 5 - P Silver	EPA 615	10	< 10
45				
46	METALS			
47	Arsenic	SW/ 846-7060	10	< 10
48	Barium	SW/ 846-7080	10	130
49	Cadmium	SW/ 846-7130	1	2
50	Chromium	SW/ 846-7190	10	15.6
51	Lead	SW/ 846-7420	10	< 10
52	Mercury	SW/ 846-7470	2	< 2
53	Selenium	SW/ 846-7740	10	< 10
54	Silver	SW/ 846-7761	2	< 2
55				
56	Flashpoint		N/A	> 212°F
57	Corrosivity (pH)		N/A	Noncorrosive
58	Reactivity (CN)		10	17
59	(S=)		200	< 200
60				

DRH JLD (CMS)
Analyst(s)

Donald Lee Perry
Donald Lee Perry, PhD.
Technical Director



**ENVIRONMENTAL
LABORATORIES, INC.**

BUSTON, LA
(318) 233
1-800-421-1111

QA/QC

DUPLICATE AND SPIKE RECOVERY REPORT FORM

EML Sample #: 34256

Service to: Ciba Geigy
Attention: _____
Address: _____

Sample I.D.: Lime Sludge
Sample Type (circle one):
Water Soil Sludge Other

PARAMETER	CONCENTRATION (ppm) % Recovery	DUPLICATES (ppm)	COMMENTS
Antimony	107.0	<0.01, <0.01	
Arsenic	90.0	18.8, 18.4	
Beryllium	112.0	0.25, 0.24	
Cadmium	94.0	0.002, 0.002	
Chromium	100.0	0.09, 0.10	
Copper	112.0	0.015, 0.016	
Lead	110.0	<0.01, <0.01	
Mercury	116.0	<0.002, <0.002	
Nickel	115.0	25.1, 25.8	
Selenium	96.0	<0.01, <0.01	
Silver	90.0	<0.002, <0.002	
Thallium	109.0	<1.0, <1.0	
Zinc	101.0	0.19, 0.19	
Cyanide	90.0	1.5, 1.7	
Sulfide	-----	<2.0, <2.0	

Samples were analyzed using EPA Method listed in the "Test Methods for Evaluation of Solid Wastes - Physical/Chemical Methods". EPA SW-846 2nd Edition, July 1982.

Alan A. Kirkish, M.S.
Laboratory Supervisor

Nov 8

Contract Laboratory **EMIL**

CIBA GEIGY

[illegible]

Vegetation	12	out of 3	outside of OC limits
Ground-Vegetation	2	out of 3	outside of OC limits
Rock-Substratum		out of	outside of OC limits

● ● VALUES ARE OUTSIDE OF CONTRACT REQUIRED OC LIMITS
● ● ADVISORY LIMITS ONLY

Comments: Survivability recoveries are acceptable

FORM 1

WATER MATRIX SPIKE/MATR SPIKE DUPLICATE RECOVERY

Case No. CIBA 66-664 Contractor EMI Contract No. NOV 1986

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPO	QC LIMITS RECOVERY
VOA SMO SAMPLE NO. 34101	1,1-Dichloroethene	.200	ND	0.0406	102	0.0406	102	0	14 81-145
	Trichloroethene	.200	ND	0.0316	99	0.0439	109	9.6	14 71-120
	Chlorobenzene	.200	ND	0.0405	101	0.0405	101	0	13 75-120
	Toluene	.200	ND	0.0400	100	0.0430	104	5.8	13 76-125
	Benzene	.200	ND	0.0406	102	0.0417	104	1.9	11 78-122
B/N SMO SAMPLE NO.	1,2,4-Trichlorobenzene	.100	ND	0.070	70				28 39-98
	Aceazaphene	.100	0.020	0.100	80				31 46-118
	2,4-Dinitrobenzene	.100	0.050	0.11	130				38 24-96
	D-n-Butylphthalate	.100	ND	0.10	100				40 11-117
	Pyrene	NA	NA	NA	NA				31 26-127
ACID SMO SAMPLE NO. 34092	N-Nitroso-Di-n-Propylamine	.100	ND	0.09	90				38 41-116
	1,4-Dichlorobenzene	.100	ND	0.06	60				28 36-97
	Pentachlorophenol	.200	ND	0.25	119				50 9-103
	Phenol	.200	ND	0.18	86				42 12-85
	2-Chlorophenol	.200	ND	0.15	73				40 27-123
PEST SMO SAMPLE NO.	4-Chloro-2-Methylphenol	.200	ND	0.25	119				42 23-97
	4-Nitrophenol	.200	ND	0.16	80				50 10-80
	Lindane								15 56-123
	Heptachlor								20 40-121
	Aldrin								22 40-120
	Dieldrin								18 52-126
	Endrin								21 56-121
	4,4'-DDT								27 38-127

* ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPO: VOA: 0 out of 5 : outside QC limits
 B/N: 1 out of 5 : outside QC limits
 ACID: 2 out of 5 : outside QC limits
 PEST: 3 out of 5 : outside QC limits

RECOVERY:

VOA: 0 out of 5 :
 B/N: 1 out of 5 :
 ACID: 2 out of 5 :
 PEST: 3 out of 5 :

Comments: NA = NOT ADDED

CHAIN OF CUSTODY RECORD FOR SHIPMENT OF SAMPLES

P.O. #108134

ANALYTICAL REQUEST FORM

Sample # 34256Laboratory Toxicol Date Collected: 10/20/86 Time: 1000 B
Address: Ciba City Samples 1 Containers: 2Attention: _____ Date Received: _____ Time: _____ B
Title: _____ Sampling Witnessed by: JOHN BRUCE
Sample Type: Water-Soil Sludge -Other _____ Requested by: H C FINKLEA
Selection Method: Grab Comp Preserved _____ Comments: _____
Sample Sources: LINE SLUDGE FROM AWT ROT. DRUM FILTER

() 129 Priority Pollutants * Asbestos (Yes) (No)

<input checked="" type="checkbox"/> Purgeables (VOA)	<input checked="" type="checkbox"/> Ignitability	<u>ADD NEW PCRA</u> <u>COMPOUNDS</u> Have Ruston make leachate & back to B.R. sent on 10/23/86
<input checked="" type="checkbox"/> Acid Extractables	<input checked="" type="checkbox"/> Corrosivity	
<input checked="" type="checkbox"/> Base Neutrals	<input checked="" type="checkbox"/> Reactivity	
<input checked="" type="checkbox"/> Priority Pesticides/PCB's	<input checked="" type="checkbox"/> EP Toxicity	
<input checked="" type="checkbox"/> Priority Metals		

() Pesticide Scan

() P.C.B.'s

invoice - BR
report - BR

WET CHEMISTRY

() Acidity	() Fecal Strep.	() Ha. Phenols	() pH	() Sulfide
() Alkalinity	() BOD ₅	() NITROGEN	() Phenols()	() Sulfate
() Bicarbonate	() Bromide	() Ammonia	() Phosphates	() Solids--Total
() Carbonate	() Chloride	() Kjeldahl	() Total	() Total Diss.
() Total	() COD	() Nitrate	() S. Solids	() Total Susp.
() Asbestos	() Color	() Nitrite	() Silica	() Vol. Diss.
() COLIFORM	() Cyanide, T.	() Organic	() Specif. Cond.	() Vol. Susp.
() Fecal	() Dissolved Oxy	() Total	() Surfactants	() Fixed Diss.
() Total	() Flow (MGD)	() Odor	() Sulfur-Sulfate	() Fixed Susp.
() S.P.C.	() Hardness	() T.O.C.	() Tannin/Lignin	
() Temperature	() Oil & Grease	() Turb. (NTU)	() Ortho	

METALS: (Non-Priority)

() Aluminum	() Cadmium	() Copper	() Mercury	() Sodium
() Antimony	() Calcium	() Iron	() Molybdenum	() Strontium
() Arsenic	() CHROMIUM	() Lead	() Nickel	() Thallium
() Barium	() Total	() Lithium	() Potassium	() Tin
() Beryllium	() Hexavalent	() Magnesium	() Selenium	() Vanadium
() Boron	() Cobalt	() Manganese	() Silver	() Zinc

Other Tests

Relinquished by: (signature)

Tracy Koda

Relinquished by: (signature)

Mozetta G. Cantrell

Relinquished by: (signature)

Ronald D. Christensen

Shipped by: (signature)

Received at Laboratory

Received by: (signature)

Mozetta G. Cantrell

Received by: (signature)

Ronald D. Christensen

Received by: (signature)

Date/Time

Date/Time

Date/Time

10/23/86 11:15

Date/Time

10/23/86 1-

Date/Time

10/23/86 5:00

Method of Shipment:

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC

900 Lakeside Drive • Mobile, Alabama 36693-5118 • (334) 666-6633 • Fax (334) 666-6696

LOG NO: MS-02208

Received: 14 APR 95

Purchase Order: X313116

Ms. Kelly Moore
Ciba-Geigy Corporation
P. O. Box 11
St. Gabriel, LA 70776

7.8% suspended
solids 11/15/95

Sampled By: Client

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
02208-1	SRL 7790 AWT Clarifer Bottoms	04-12-95
PARAMETER	02208-1	
Volatiles in TCLP Extract (8240)		
Benzene (TCLP), mg/l		<0.020
Carbon tetrachloride (TCLP), mg/l		<0.020
Chlorobenzene (TCLP), mg/l		<0.020
Chloroform (TCLP), mg/l		0.52
1,2-Dichloroethane (TCLP), mg/l		<0.020
1,1-Dichloroethylene (TCLP), mg/l		<0.020
Methyl ethyl ketone (TCLP), mg/l		<0.10
Tetrachloroethylene (TCLP), mg/l		<0.020
Trichloroethylene (TCLP), mg/l		<0.020
Vinyl chloride (TCLP), mg/l		<0.040
Semivolatiles in TCLP Extract (8270)		
Cresol o,m,p (TCLP), mg/l		<0.0050
1,4-Dichlorobenzene (TCLP), mg/l		<0.0050
2,4-Dinitrotoluene (TCLP), mg/l		<0.0050
Hexachlorobenzene (TCLP), mg/l		<0.0050
Hexachlorobutadiene (TCLP), mg/l		<0.0050
Hexachloroethane (TCLP), mg/l		<0.0050
Nitrobenzene (TCLP), mg/l		<0.25
Pentachlorophenol (TCLP), mg/l		<0.050
2,4,5-Trichlorophenol (TCLP), mg/l		<0.050
2,4,6-Trichlorophenol (TCLP), mg/l		<1.0
Pyridine (TCLP), mg/l		

Data Reviewed By: <i>Kelly D. Moore</i> Sig.
<div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto; text-align: center;">1995</div>
KELLY D. MOORE RCRA CHEMIST

PB Borden
11/18/95

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LOG NO: MS-02208

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Purchase Order: X313116

Sampled By: Client

REPORT OF RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
02208-1	SRL 7790 AWT Clarifer Bottoms	04-12-95
PARAMETER	02208-1	
Pesticides in TCLP Extract (8080)		
Chlordane (TCLP), mg/l	<0.025	
Endrin (TCLP), mg/l	<0.0050	
Heptachlor (TCLP), mg/l	<0.0025	
Heptachlor epoxide (TCLP), mg/l	<0.0025	
Lindane (g-BHC) (TCLP), mg/l	<0.0025	
Methoxychlor (TCLP), mg/l	<0.025	
Toxaphene (TCLP), mg/l	<0.25	
Herbicides in TLCP Extract (8130)		
2,4-D (TCLP), mg/l	<0.025	
2,4,5-TP Silvex (TCLP), mg/l	<0.025	
Metals in TCLP Extract (6010)		
Arsenic (TCLP-6010), mg/l	<0.20	
Barium (TCLP-6010), mg/l	<1.0	
Cadmium (TCLP-6010), mg/l	<0.10	
Chromium (TCLP-6010), mg/l	0.21	
Lead (TCLP-6010), mg/l	<0.20	
Selenium (TCLP-6010), mg/l	<0.20	
Silver (TCLP-6010), mg/l	<0.10	
Mercury (TCLP), mg/l	<0.010	

REFERENCE: EPA SW-846 3rd Edition, 1986

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LOG NO: M5-02208

Received: 14 APR 95

Purchase Order: X313116

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REPORT OF RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION . SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
02208-2	SRL 7790 AWT Clarifer Bottoms - Matrix Spike (X Recovery)	04-12-95
PARAMETER	02208-2	
Volatiles in TCLP Extract (8240)		
Benzene (TCLP), 1 Rec	104 X	
Carbon tetrachloride (TCLP), 1 Rec	115 X	
Chlorobenzene (TCLP), 1 Rec	100 X	
Chloroform (TCLP), 1 Rec	50 X*F61	
1,2-Dichloroethane (TCLP), 1 Rec	93 X	
1,1-Dichloroethylene (TCLP), 1 Rec	91 X	
Methyl ethyl ketone (TCLP), 1 Rec	78 X	
Tetrachloroethylene (TCLP), 1 Rec	97 X	
Trichloroethylene (TCLP), 1 Rec	97 X	
Vinyl chloride (TCLP), 1 Rec	89 X	
Semivolatiles in TCLP Extract (8270)		
Cresol o,m,p (TCLP), 1 Rec	0 X	
1,4-Dichlorobenzene (TCLP), 1 Rec	75 X	
2,4-Dinitrotoluene (TCLP), 1 Rec	9 X	
Hexachlorobenzene (TCLP), 1 Rec	116 X	
Hexachlorobutadiene (TCLP), 1 Rec	76 X	
Hexachloroethane (TCLP), 1 Rec	71 X	
Nitrobenzene (TCLP), 1 Rec	64 X	
Pentachlorophenol (TCLP), 1 Rec	67 X	
2,4,6-Trichlorophenol (TCLP), 1 Rec	63 X	
Pyridine (TCLP), 1 Rec	48 X	

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Ciba-Geigy Corporation
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St. Gabriel, LA 70776

Sampled By: Client

REPORT OF RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, SOLID OR SEMISOLID SAMPLES -	DATE SAMPLED
02208-2	SRL 7790 AWT Clarifer Bottoms - Matrix Spike (Z Recovery)	04-12-95
PARAMETER	02208-2	
Pesticides in TCLP Extract (8080)		
Endrin (TCLP), Z Rec	132 Z	
Heptachlor (TCLP), Z Rec	109 Z	
Heptachlor epoxide (TCLP), Z Rec	103 Z	
Lindane (g-BHC) (TCLP), Z Rec	107 Z	
Methoxychlor (TCLP), Z Rec	95 Z	
Herbicides in TLCP Extract (8150)		
2,4-D (TCLP), Z Rec	111 Z	
2,4,5-TP Silvex (TCLP), Z Rec	100 Z	
Metals in TCLP Extract (6010)		
Arsenic (TCLP-6010), Z Rec	92 Z	
Barium (TCLP-6010), Z Rec	80 Z	
Cadmium (TCLP-6010), Z Rec	78 Z	
Chromium (TCLP-6010), Z Rec	69 Z	
Lead (TCLP-6010), Z Rec	51 Z	
Selenium (TCLP-6010), Z Rec	83 Z	
Silver (TCLP-6010), Z Rec	77 Z	
Mercury (TCLP)	102 Z	

REFERENCE: EPA SW-846 3rd Edition, 1986

*F61 - The recovery of the matrix spike is outside advisory limit due to the abundance of the target analyte in the sample.

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LOG NO: M5-02208

Received: 14 APR 95

Purchase Order: X313116

Ms. Kelly Moore
Ciba-Geigy Corporation
P. O. Box 11
St. Gabriel, LA 70776

Sampled By: Client

REPORT OF RESULTS

Page 5

LOG NO SAMPLE DESCRIPTION . QC REPORT FOR SOLID/SEMISOLID

02208-3 Laboratory Blank
02208-4 Accuracy (% Recovery for LCS/LCSD)
02208-5 Precision (Relative % Difference)

PARAMETER	02208-3	02208-4	02208-5
Volatiles in TCLP Extract (8240)			
Benzene (TCLP), mg/l	<0.020	102/103 %	1.0 %
Carbon tetrachloride (TCLP), mg/l	<0.020	---	---
Chlorobenzene (TCLP), mg/l	<0.020	100/101 %	1.0 %
Chloroform (TCLP), mg/l	<0.020	---	---
1,2-Dichloroethane (TCLP), mg/l	<0.020	---	---
1,1-Dichloroethylene (TCLP), mg/l	<0.020	103/101 %	2.0 %
Methyl ethyl ketone (TCLP), mg/l	<0.10	---	---
Tetrachloroethylene (TCLP), mg/l	<0.020	---	---
Trichloroethylene (TCLP), mg/l	<0.020	101/103 %	2.0 %
Vinyl chloride (TCLP), mg/l	<0.040	---	---
Semivolatiles in TCLP Extract (8270)			
Cresol o.m.p (TCLP), mg/l	<0.0050	---	---
1,4-Dichlorobenzene (TCLP), mg/l	<0.0050	53/57 %	6.0 %
2,4-Dinitrotoluene (TCLP), mg/l	<0.0050	46/46 %	0.88 %
Hexachlorobenzene (TCLP), mg/l	<0.0050	---	---
Hexachlorobutadiene (TCLP), mg/l	<0.0050	---	---
Hexachloroethane (TCLP), mg/l	<0.0050	---	---
Nitrobenzene (TCLP), mg/l	<0.0050	---	---
Pentachlorophenol (TCLP), mg/l	<0.25	50/44 %	13 %
2,4,5-Trichlorophenol (TCLP), mg/l	<0.050	---	---
2,4,6-Trichlorophenol (TCLP), mg/l	<0.050	---	---
Pyridine (TCLP), mg/l	<1.0	---	---

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LOG NO: M5-02208

Received: 14 APR 95

Purchase Order: X313116

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Ciba-Geigy Corporation
P. O. Box 11
St. Gabriel, LA 70776

Sampled By: Client

REPORT OF RESULTS

Page 6

LOG NO SAMPLE DESCRIPTION, QC REPORT FOR SOLID/SEMISOLID

02208-3 Laboratory Blank
02208-4 Accuracy (Z Recovery for LCS/LCSD)
02208-5 Precision (Relative Z Difference)

PARAMETER	02208-3	02208-4	02208-5
Pesticides in TCLP Extract (8080)			
Chlordane (TCLP), mg/l	<0.025	---	---
Endrin (TCLP), mg/l	<0.0050	123/110 Z	11 Z
Heptachlor (TCLP), mg/l	<0.0025	94/87 Z	7.7 Z
Heptachlor epoxide (TCLP), mg/l	<0.0025	105/98 Z	6.9 Z
Lindane (g-BHC) (TCLP), mg/l	<0.0025	99/93 Z	6.3 Z
Methoxychlor (TCLP), mg/l	<0.025	99/92 Z	7.3 Z
Toxaphene (TCLP), mg/l	<0.25	---	---
Herbicides in TLCP Extract (8150)			
2,4-D (TCLP), mg/l	<0.025	83/88 Z	5.8 Z
2,4,5-TP Silvex (TCLP), mg/l	<0.025	103/113 Z	9.0 Z
Metals in TCLP Extract (6010)			
Arsenic (TCLP-6010), mg/l	<0.20	110/114 Z	3.6 Z
Barium (TCLP-6010), mg/l	<1.0	96/96 Z	0 Z
Cadmium (TCLP-6010), mg/l	<0.10	95/97 Z	2.1 Z
Chromium (TCLP-6010), mg/l	<0.20	88/90 Z	2.2 Z
Lead (TCLP-6010), mg/l	<0.20	68/68 Z	0 Z
Selenium (TCLP-6010), mg/l	<0.20	106/98 Z	7.8 Z
Silver (TCLP-6010), mg/l	<0.10	88/89 Z	1.1 Z
Mercury (TCLP), mg/l	<0.010	88/88 Z	0 Z


Jesse L. Smith

RESULTS TO: L-111608
PHONE: (909) 865-1426
P.O. NUMBER X313116
COURT CENTER _____

[illegible][illegible]

8001 PLAS
 8002 ORGANIC DRUGS AND POLYMER
 8003 INORGANICS AND CRYST
 8120 ORGANIZED MATERIALS
 8140 ORGANOPOLYMER/PLASTICS
 8150 ORGANIZED MEMBRANES
 8200 INORGANIC DRUGS
 8210 INORGANIC DRUGS PACKED COLUMN
 8270 INORGANIC DRUGS CAPILLARY COLUMN CON-
 8310 TOLL AND ANALYTICAL CHARGE
 REACTIVITY CHANGE (RETURNED FROM INDEX)
 8000 TOTAL ORGANIC CARBON
 8000 NITROGEN
 8000 SULFUR

[illegible]

4101 KDC
2002 AMERICAN AIRMOBILE
2002 TOTAL PRODUCTION 1457
2002 METALRY
ED 2 AMERICAN CROCODILE
DOPPER MODEL 240C
4101 OIL AND GREASE
4101 AIRCRAFT
2002 AIRCRAFT AIRFRAME
2002 TOTAL CRANE
2001 AMER CRANE
2002 C-47 CRANE
2002 ROBERTS CRANE (2) 1457
2002 ROBERTS CRANE (2) 1457
2002 AIRCRAFT 1457

COMMITTEE

Received of
 Melanis Schreyer
 \$115.00 - Aradia
 \$115.00
 \$115.00

Lab feed

4-14-95 1000

4/13/95 1000
4-13-95

REC'D 3.1

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC

900 Lakeside Drive • Mobile, Alabama 36693-5118 • (334) 666-6633 • Fax (334) 666-6696

Ms. Kelly Moore
Ciba-Geigy Corporation
P. O. Box 11
St. Gabriel, LA 70776

19.6% suspended
solids from

LOG NO: M5-02361
Received: 21 APR 95
Purchase Order: X313116

Sampled By: Client

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
02361-1	SRL 7832 AWT Effluent Clarifier Bottoms	04-20-95
PARAMETER	corrected 11/15/95 RSE 02361-1	
Volatiles in TCLP Extract (8240)		
Benzene (TCLP), mg/l		<0.020
Carbon tetrachloride (TCLP), mg/l		<0.020
Chlorobenzene (TCLP), mg/l		<0.020
Chloroform (TCLP), mg/l		0.033
1,2-Dichloroethane (TCLP), mg/l		<0.020
1,1-Dichloroethylene (TCLP), mg/l		<0.020
Methyl ethyl ketone (TCLP), mg/l		<0.10
Tetrachloroethylene (TCLP), mg/l		<0.020
Trichloroethylene (TCLP), mg/l		<0.020
Vinyl chloride (TCLP), mg/l		<0.040
Semivolatiles in TCLP Extract (8270)		
Cresol o,m,p (TCLP), mg/l		<0.050
1,4-Dichlorobenzene (TCLP), mg/l		<0.050
2,4-Dinitrotoluene (TCLP), mg/l		<0.050
Hexachlorobenzene (TCLP), mg/l		<0.050
Hexachlorobutadiene (TCLP), mg/l		<0.050
Hexachloroethane (TCLP), mg/l		<0.050
Nitrobenzene (TCLP), mg/l		<0.25
Pentachlorophenol (TCLP), mg/l		<0.050
2,4,5-Trichlorophenol (TCLP), mg/l		<0.050
2,4,6-Trichlorophenol (TCLP), mg/l		<0.050
Pyridine (TCLP), mg/l		

Data Reviewed By: Seth L. Moore Sig. _____

7 1995

KELLY D. MOORE
DORA CHEMIST

RSE Boudreau
11/18/95

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC

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LOG NO: MS-02361

Received: 21 APR 95

Purchase Order: X313116

Ms. Kelly Moore
Ciba-Geigy Corporation
P. O. Box 11
St. Gabriel, LA 70776

Sampled By: Client

REPORT OF RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION, SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
02361-1	SRL 7832 AWT Effluent	04-20-95
PARAMETER	02361-1	
Pesticides in TCLP Extract (8080)		
Chlordane (TCLP), mg/l		<0.025
Endrin (TCLP), mg/l		<0.0050
Heptachlor (TCLP), mg/l		<0.0025
Heptachlor epoxide (TCLP), mg/l		<0.0025
Lindane (g-BHC) (TCLP), mg/l		<0.0025
Methoxychlor (TCLP), mg/l		<0.025
Toxaphene (TCLP), mg/l		<0.25
Herbicides in TLCP Extract (8150)		
2,4-D (TCLP), mg/l		<0.025
2,4,5-TP Silver (TCLP), mg/l		<0.025
Metals in TCLP Extract (6010)		
Arsenic (TCLP-6010), mg/l		<0.20
Barium (TCLP-6010), mg/l		<1.0
Cadmium (TCLP-6010), mg/l		<0.10
Chromium (TCLP-6010), mg/l		<0.20
Lead (TCLP-6010), mg/l		<4.0*F65
Selenium (TCLP-6010), mg/l		<0.20
Silver (TCLP-6010), mg/l		<0.10
Mercury (TCLP), mg/l		<0.010

REFERENCE: EPA SW-846 3rd Edition, 1986
*F65 - Elevated detection limits were reported
due to sample matrix interference which required
sample or extract dilution.

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LOG NO: MS-02361

Received: 21 APR 95

Ms. Kelly Moore
Ciba-Geigy Corporation
P. O. Box 11
St. Gabriel, LA 70776

Purchase Order: X313116

Sampled By: Client

REPORT OF RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION . SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
02361-2	SRL 7832 AWT Effluent - Matrix Spike (X Recovery)	04-20-95
PARAMETER		02361-2
Volatiles in TCLP Extract (8240)		
Benzene (TCLP), X Rec		98 X
Carbon tetrachloride (TCLP), X Rec		110 X
Chlorobenzene (TCLP), X Rec		103 X
Chloroform (TCLP), X Rec		109 X
1,2-Dichloroethane (TCLP), X Rec		111 X
1,1-Dichloroethylene (TCLP), X Rec		103 X
Methyl ethyl ketone (TCLP), X Rec		73 X
Tetrachloroethylene (TCLP), X Rec		96 X
Trichloroethylene (TCLP), X Rec		93 X
Vinyl chloride (TCLP), X Rec		99 X
Semivolatiles in TCLP Extract (8270)		
Cresol o.m.p (TCLP), X		37 X
1,4-Dichlorobenzene (TCLP), X		84 X
2,4-Dinitrotoluene (TCLP), X		130 X
Hexachlorobenzene (TCLP), X		142 X
Hexachlorobutadiene (TCLP), X		80 X
Hexachloroethane (TCLP), X		80 X
Nitrobenzene (TCLP), X		97 X
Pentachlorophenol (TCLP), X		79 X
2,4,6-Trichlorophenol (TCLP), X		114 X
Pyridine (TCLP), X		91 X

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REPORT OF RESULTS

Page 4

LOG NO	SAMPLE DESCRIPTION, SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
02361-2	SRL 7832 AWT Effluent - Matrix Spike (Z Recovery)	04-20-93
PARAMETER	02361-2	
Pesticides in TCLP Extract (8080)		
Endrin (TCLP), Z Rec	114 Z	
Heptachlor (TCLP), Z Rec	96 Z	
Heptachlor epoxide (TCLP), Z Rec	96 Z	
Lindane (g-BHC) (TCLP), Z Rec	93 Z	
Methoxychlor (TCLP), Z Rec	98 Z	
Herbicides in TCLP Extract (8150)		
2,4-D (TCLP), Z Rec	105 Z	
2,4,5-TP Silvex (TCLP), Z Rec	79 Z	
Metals in TCLP Extract (6010)		
Arsenic (TCLP-6010), Z Rec	90 Z	
Barium (TCLP-6010), Z Rec	88 Z	
Cadmium (TCLP-6010), Z Rec	91 Z	
Chromium (TCLP-6010), Z Rec	80 Z	
Lead (TCLP-6010), Z Rec	36 Z+F73	
Selenium (TCLP-6010), Z Rec	98 Z	
Silver (TCLP-6010), Z Rec	84 Z	
Mercury (TCLP), Z	106 Z	

REFERENCE: EPA SW-846 3rd Edition, 1986
*F73 - Matrix spike recoveries were outside advisory limits due to matrix interference present in the sample.

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LOG NO: MS-02361

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Purchase Order: X313116

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REPORT OF RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION . QC REPORT FOR SOLID/SEMISOLID			
02361-3	Laboratory Blank			
02361-4	Accuracy (% Recovery for LCS/LCSD)			
02361-5	Precision (Relative % Difference)			
PARAMETER		02361-3	02361-4	02361-5
Volatiles in TCLP Extract (8240)				
Benzene (TCLP), mg/l	<0.020	92/94 %	2.2 %	
Carbon tetrachloride (TCLP), mg/l	<0.020	---	---	
Chlorobenzene (TCLP), mg/l	<0.020	106/107 %	0.94 %	
Chloroform (TCLP), mg/l	<0.020	---	---	
1,2-Dichloroethane (TCLP), mg/l	<0.020	---	---	
1,1-Dichloroethylene (TCLP), mg/l	<0.020	76/72 %	5.4 %	
Methyl ethyl ketone (TCLP), mg/l	<0.10	---	---	
Tetrachloroethylene (TCLP), mg/l	<0.020	---	---	
Trichloroethylene (TCLP), mg/l	<0.020	99/100 %	1.0 %	
Vinyl chloride (TCLP), mg/l	<0.040	---	---	
Semivolatiles in TCLP Extract (8270)				
Cresol o,m,p (TCLP), mg/l	<0.050	---	---	
1,4-Dichlorobenzene (TCLP), mg/l	<0.050	86/81 %	6.0 %	
2,4-Dinitrotoluene (TCLP), mg/l	<0.050	112/116 %	3.5 %	
Hexachlorobenzene (TCLP), mg/l	<0.050	---	---	
Hexachlorobutadiene (TCLP), mg/l	<0.050	---	---	
Hexachloroethane (TCLP), mg/l	<0.050	---	---	
Nitrobenzene (TCLP), mg/l	<0.25	67/68 %	1.5 %	
Pentachlorophenol (TCLP), mg/l	<0.050	---	---	
2,4,5-Trichlorophenol (TCLP), mg/l	<0.050	---	---	
2,4,6-Trichlorophenol (TCLP), mg/l	<1.0	---	---	
Pyridine (TCLP), mg/l				

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REPORT OF RESULTS

Page 6

LOG NO SAMPLE DESCRIPTION, QC REPORT FOR SOLID/SEMISOLID

02361-3 Laboratory Blank
02361-4 Accuracy (% Recovery for LCS/LCSD)
02361-5 Precision (Relative % Difference)

PARAMETER	02361-3	02361-4	02361-5
Pesticides in TCLP Extract (8080)	<0.025	---	---
Chlordane (TCLP), mg/l	<0.0050	110/92 %	18 %
Endrin (TCLP), mg/l	<0.0025	75/85 %	12 %
Heptachlor (TCLP), mg/l	<0.0025	78/81 %	3.8 %
Heptachlor epoxide (TCLP), mg/l	<0.0025	80/84 %	4.9 %
Lindane (g-BHC) (TCLP), mg/l	<0.025	97/98 %	1.0 %
Methoxychlor (TCLP), mg/l	<0.25	---	---
Toxaphene (TCLP), mg/l			
Herbicides in TLCP Extract (8150)	<0.025	95/89 %	6.9 %
2,4-D (TCLP), mg/l	<0.025	120/104 %	14 %
2,4,5-TP Silvex (TCLP), mg/l			
Metals in TCLP Extract (6010)	<0.20	102/106 %	3.8 %
Arsenic (TCLP-6010), mg/l	<1.0	93/95 %	2.1 %
Barium (TCLP-6010), mg/l	<0.10	100/103 %	2.9 %
Cadmium (TCLP-6010), mg/l	<0.20	93/96 %	2.1 %
Chromium (TCLP-6010), mg/l	<0.20	96/98 %	3.2 %
Lead (TCLP-6010), mg/l	<0.20	109/109 %	0 %
Selenium (TCLP-6010), mg/l	<0.10	88/91 %	3.3 %
Silver (TCLP-6010), mg/l	<0.010	104/105 %	0.96 %
Mercury (TCLP), mg/l			

Michelle H. Smith
Jesse L. Smith

1

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES INC

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LOG NO: M5-06410
Received: 15 NOV 95
Reported: 30 NOV 95

Ms. Kelly Moore
Ciba-Geigy Corporation
P. O. Box 11
St. Gabriel, LA 70776

Purchase Order: X298371

Sampled By: Client

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION, SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
06410-1	SRL 9228 AWT Clarifier Blowdown	11-14-95
PARAMETER	06410-1	
Volatiles in TCLP Extract (8240)		
Benzene (TCLP), mg/l	<0.020	
Carbon tetrachloride (TCLP), mg/l	<0.020	
Chlorobenzene (TCLP), mg/l	<0.020	
Chloroform (TCLP), mg/l	0.043	
1,2-Dichloroethane (TCLP), mg/l	<0.020	
1,1-Dichloroethylene (TCLP), mg/l	<0.020	
Methyl ethyl ketone (TCLP), mg/l	<0.10	
Tetrachloroethylene (TCLP), mg/l	<0.020	
Trichloroethylene (TCLP), mg/l	<0.020	
Vinyl chloride (TCLP), mg/l	<0.040	
Date Analyzed	11.25.95	
Semivolatiles in TCLP Extract (8270)		
Cresol o,m,p (TCLP), mg/l	<0.10	
1,4-Dichlorobenzene (TCLP), mg/l	<0.10	
2,4-Dinitrotoluene (TCLP), mg/l	<0.10	
Hexachlorobenzene (TCLP), mg/l	<0.10	
Hexachlorobutadiene (TCLP), mg/l	<0.10	
Hexachloroethane (TCLP), mg/l	<0.10	
Nitrobenzene (TCLP), mg/l	<0.10	
Pentachlorophenol (TCLP), mg/l	<0.50	
2,4,5-Trichlorophenol (TCLP), mg/l	<0.10	
2,4,6-Trichlorophenol (TCLP), mg/l	<0.10	
Pyridine (TCLP), mg/l	<2.0	

DATA REVIEWED BY:

ANALYST *[Signature]*

WST. MGMT. SPEC. *[Signature]* 12/14/95

ERAGWST.COOR. *[Signature]* 12/7/95

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LOG NO: MS-06410
Received: 15 NOV 95
Reported: 30 NOV 95

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Purchase Order: X298371

Sampled By: Client

REPORT OF RESULTS

Page 2

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
06410-1	SRL 9228 AWT Clarifier Blowdown	11-14-95
PARAMETER	06410-1	
Pesticides in TCLP Extract (8080)		
Chlordane (TCLP), mg/l	<0.025	
Endrin (TCLP), mg/l	<0.0030	
Heptachlor (TCLP), mg/l	<0.0025	
Heptachlor epoxide (TCLP), mg/l	<0.0025	
Lindane (g-BHC) (TCLP), mg/l	<0.0025	
Methoxychlor (TCLP), mg/l	<0.025	
Toxaphene (TCLP), mg/l	<0.25	
Surrogate Recovery	104 %	
Date Extracted	11.21.95	
Date Analyzed	11.28.95	
Analyst	PC	
Herbicides in TCLP Extract (8150)		
2,4-D (TCLP), mg/l	<0.025	
2,4,5-TP Silvex (TCLP), mg/l	<0.025	
Date Extracted	11.20.95	
Date Analyzed	11.21.95	
Analyst	MS	
Metals in TCLP Extract (6010)		
Arsenic (TCLP-6010), mg/l	<0.20	
Barium (TCLP-6010), mg/l	<1.0	
Cadmium (TCLP-6010), mg/l	<0.10	
Chromium (TCLP-6010), mg/l	0.20	
Lead (TCLP-6010), mg/l	<4.0*P65	
Selenium (TCLP-6010), mg/l	<0.20	
Silver (TCLP-6010), mg/l	<0.10	
Mercury (TCLP), mg/l	<0.010	

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LOG NO: MS-06410
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Ciba-Geigy Corporation
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Purchase Order: X298371

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REPORT OF RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE SAMPLED
06410-1	SRL 9228 AWT Clarifier Blowdown	11-14-95
PARAMETER	06410-1	

REFERENCE: EPA SW-846 3rd Edition, 1986
*F65 - Elevated detection limits were reported
due to sample matrix interference which required
sample or extract dilution.

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LOG NO: M5-06410
Received: 15 NOV 95
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Ms. Kelly Moore
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P. O. Box 11
St. Gabriel, LA 70776

Purchase Order: X298371

Sampled By: Client

REPORT OF RESULTS

Page 4

LOG NO SAMPLE DESCRIPTION, QC REPORT FOR SOLID/SEMISOLID

06410-2 Laboratory Blank
06410-3 Accuracy (% Recovery for LCS/LCSD)
06410-4 SL LCS % Recovery Limits

PARAMETER	06410-2	06410-3	06410-4
Volatiles in TCLP Extract (8240)			
Benzene (TCLP), mg/l	<0.020	108/99 %	8.7 %
Carbon tetrachloride (TCLP), mg/l	<0.020	---	---
Chlorobenzene (TCLP), mg/l	<0.020	97/94 %	3.1 %
Chloroform (TCLP), mg/l	<0.020	---	---
1,2-Dichloroethane (TCLP), mg/l	<0.020	---	---
1,1-Dichloroethylene (TCLP), mg/l	<0.020	97/93 %	2.1 %
Methyl ethyl ketone (TCLP), mg/l	<0.10	---	---
Tetrachloroethylene (TCLP), mg/l	<0.020	---	---
Trichloroethylene (TCLP), mg/l	<0.020	100/97 %	3.0 %
Vinyl chloride (TCLP), mg/l	<0.040	---	---
Semivolatiles in TCLP Extract (8270)			
Cresol o,m,p (TCLP), mg/l	<0.050	---	---
1,4-Dichlorobenzene (TCLP), mg/l	<0.050	73/87 %	17 %
2,4-Dinitrotoluene (TCLP), mg/l	<0.050	58/79 %	30 %
Hexachlorobenzene (TCLP), mg/l	<0.050	---	---
Hexachlorobutadiene (TCLP), mg/l	<0.050	---	---
Hexachloroethane (TCLP), mg/l	<0.050	---	---
Nitrobenzene (TCLP), mg/l	<0.050	---	---
Pentachlorophenol (TCLP), mg/l	<0.25	82/94 %	14 %
2,4,5-Trichlorophenol (TCLP), mg/l	<0.050	---	---
2,4,6-Trichlorophenol (TCLP), mg/l	<0.050	---	---
Pyridine (TCLP), mg/l	<1.0	---	---

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LOG NO: MS-06410
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REPORT OF RESULTS

Page 3

LOG NO SAMPLE DESCRIPTION . QC REPORT FOR SOLID/SEMISOLID

06410-2 Laboratory Blank
06410-3 Accuracy (% Recovery for LCS/LCSD)
06410-4 SL LCS % Recovery Limits

PARAMETER	06410-2	06410-3	06410-4
Pesticides in TCLP Extract (8080)	<0.025	---	---
Chlordane (TCLP), mg/l	<0.0050	92/84 %	17-167 %
Endrin (TCLP), mg/l	<0.0025	88/77 %	34-133 %
Heptachlor (TCLP), mg/l	<0.0025	80/76 %	10-218 %
Heptachlor epoxide (TCLP), mg/l	<0.0025	69/65 %	29-155 %
Lindane (g-BHC) (TCLP), mg/l	<0.025	110/101 %	50-140 %
Methoxychlor (TCLP), mg/l	<0.25	---	---
Toxaphene (TCLP), mg/l	99 %	92/85 %	28-115 %
Surrogate Recovery			
Herbicides in TCLP Extract (8150)	<0.025	91/93 %	10-262 %
2,4-D (TCLP), mg/l	<0.025	100/107 %	10-201 %
2,4,5-TP Silvex (TCLP), mg/l			
Metals in TCLP Extract (6010)	<0.20	94/97 %	50-150 %
Arsenic (TCLP-6010), mg/l	<1.0	96/97 %	50-150 %
Barium (TCLP-6010), mg/l	<0.10	94/96 %	50-150 %
Cadmium (TCLP-6010), mg/l	<0.20	86/87 %	50-150 %
Chromium (TCLP-6010), mg/l	<0.20	85/86 %	50-150 %
Lead (TCLP-6010), mg/l	<0.20	92/98 %	50-150 %
Selenium (TCLP-6010), mg/l	<0.10	82/83 %	50-150 %
Silver (TCLP-6010), mg/l	<0.010	92/100 %	70-130 %
Mercury (TCLP), mg/l			

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LOG NO: M5-06410
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Purchase Order: X298371

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REPORT OF RESULTS

Page 6

LOG NO SAMPLE DESCRIPTION , QC REPORT FOR SOLID/SEMISOLID

06410-2 Laboratory Blank
06410-3 Accuracy (X Recovery for LCS/LCSD)
06410-4 SL LCS X Recovery Limits

PARAMETER

06410-2 06410-3 06410-4

Project Narrative: SRL 9228 AWT Clarifier Blowdown sample was collected on 11.14.95 received on 11.15.95, and logged in as SL Log No. M506410-1 for Full TCLP analysis. Dilution of the sample digestate was required for TCLP lead analysis, due to interference from calcium. When calcium is at saturation levels, a calculation error results for TCLP lead when computer applies an interference element correction (IEC) factor. In order to achieve the correct TCLP lead result, the sample must be diluted to bring the calcium within measureable range so the appropriate interference element correction factor can be applied. The reported TCLP lead result was flagged with the *P65 data qualifier.

Jesse L. Smith 11.30.95
Jesse L. Smith, Project Manager

322 CIBA CORPORATION
ENVIRONMENTAL ANALYTICAL LABORATORY
ST. GABRIEL PLANT CHAIN OF CUSTODY

SL-9228

NO CG #

SAMPLED BY Bruce E Stringer
(FRONT)

Sr Tech

71

COMPANY *Ciba*

SIGNATURE Bruce E. Johnson

SAMPLE ID	DATE	TIME	MATRIX	DESCRIPTION	NO OF SAMPLES
Liquid	11-19-95	0830	Liquid	Clarifier Bypass	2

[illegible]

RECEIVED BY
JAN 1961

James D. [Signature]

442-897300

DATE 11-14-95

THE 0045

DATE BY		SIGNATURE	YES	NO	COMMENTS
SAMPLE CONDITION					
TRANSPORTED COLD				<input checked="" type="checkbox"/>	
PROPERLY PRESERVED			<input checked="" type="checkbox"/>		
PROPER CONTAINER			<input checked="" type="checkbox"/>		
HEADSPACE IN VOA				<input checked="" type="checkbox"/>	
VOA SEPTUM, IFE SIDE DOWN				<input checked="" type="checkbox"/>	
OTHER					

PROPERTY CODE

道徳教育

For RBB

CIBA CORPORATION
ENVIRONMENTAL ANALYTICAL LABORATORY
ST. GABRIEL PLANT CHAIN OF CUSTODY

SA 9229

NO CFA

SAMPLED BY Bruce Stringer
(PRINT)

TITLE Sr Tech

UNIT ET

COMPANY Ciba

SIGNATURE *Bruce Stringer*

LABORATORY
SAMPLE NUMBER

CONTAINER TYPE/
PRESERVATIVE

FOR LAB USE
ONLY

REMARKS

NO OF
SAMPLES

DESCRIPTION

MATRIX

TIME

DATE

SAMPLE ID

Recal I (Lime grit)

Solids

1015

11-14-95

Solids

REMARKS

TIME

DATE

RECEIVED BY (SIGNATURE)

REMARKS

TIME

DATE

RELINQUISHED BY (SIGNATURE)

11-14-95

1030

Bruce Stringer

TIME 1020

DATE 11-14-95

TITLE Sr Tech

RECEIVED IN
LAB BY *Bruce Stringer*
SIGNATURE

PROJECT CODE

CHANGE CODE

COMMENTS

YES NO

SAMPLE CONDITION

TRANSPORTED COLD

PROPERLY PRESERVED

PROPER CONTAINER

HEADSPACE IN VOA

VOA SEPTUM, TFE SIDE DOWN

OTHER



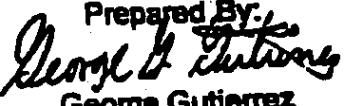
SECRET - SECURITY INFORMATION - U.S. EYES ONLY

APPENDIX XII

PLANT PROCEDURE



Ciba-Geigy
ST. GABRIEL PLANT

Title: OFFSITE EMERGENCY RESPONSE	Procedure No.: K-7	
	Date Effective: 1/11/95	
	Supersedes Procedure Data: N/A	
	Page: 1 of 6	
Plant Manager  Ken DeVun	Safety Superintendent  Russ Kahn	Prepared By:  George Gutierrez

I. PURPOSE

This policy establishes the existence, structure, training, requirements, and duties of the plant Chemical Emergency Response Team (C.E.R.T.).

II. SCOPE

In the event of offsite emergencies involving our products, raw materials or wastes, C.E.R.T. will respond. C.E.R.T. will also respond to emergencies offsite involving other products, upon request of other Ciba sites, local, state, or federal officials or CHEMNET. They will advise and assist the carrier, warehouse owner, etc. because the safe transportation and storage of hazardous materials is considered to be an extension of our manufacturing process. In the event of an offsite emergency, all appropriate Ciba personnel are notified of the incident promptly, and action is taken to correct the situation and help reduce the hazard, remove the potential danger, and mitigate the situation.

The primary responsibility of the team is to provide onsite assistance at the scene of transportation and warehousing emergencies involving chemicals. Company procedures make it clear that primary responsibility for dealing with a transportation emergency rests with the carrier, and that Ciba's role should be to advise and assist the carrier and emergency services personnel at the scene by providing technical information on products and

Team Members - Provide assistance to the Incident Commander. Must be familiar with the proper use of the equipment on the response trailer and the hazards of the chemicals to which they are responding.

Steering Committee - The Steering Committee is responsible for holding periodic meetings to address membership in and direction of the team, training, future requirements, problems, annual audits, and certification of C.E.R.T. team members.

IV. REQUIREMENTS

- Voluntary participation with approval from Steering Committee.
- Must pass health screen test (Sub-Max).

V. TRAINING REQUIREMENTS

Coordinators, Incident Commanders and Team Members will receive the same level of training. They will be trained in:

- Hazard and risk assessment techniques.
- How to select and use proper personal protective equipment.
- Know how to perform basic control, containment and/or confinement operations.
- Know how to implement basic decontamination procedures.
- Know how to interpret and understand the contents of MSDS's in general.

In addition, they will have competency in the following areas:

- Know and be able to implement the incident command system.
- Know and understand this policy.
- Know and understand the hazards and risks associated with working in chemical protective clothing.
- Know of the state emergency response plan and of the Federal Regional Response Team.

VII. SUPPORT PERSONNEL

The Coordinator or Incident Commander may request assistance from anyone with expertise in safety, chemicals, containers, environmental, equipment, clean-up, monitoring, etc. to provide resources and advice to the team. These people may be requested to go to the scene with the response team, but they may not approach a scene closer than the command post unless they have received all required training and documentation is in place. The Incident Commander will direct these people at the scene at all times. Coordinators may call upon Ciba Medical personnel (nurses, EMT, First Responders) to serve in a medical role only. If Ciba medical personnel are unavailable, outside resources may be utilized (i.e., Acadian Ambulance).

SUGGESTED RESOURCES

Environmental

Murry McMillan
Marty Fontenot
Richard Boudreaux

Safety

Russ Kahn
Ronnie Rainey
Beth O'Connor

Public Relations

Renee Smith Tadle
Gary Parks

Production Areas

Superintendent
Production Engineer/Chemist

Railroad Transportation

Sondra Young

Technical Support

Richard Herrn
Flo Vincik
Amy Patton
TPD

The Emergency Phone Roster for plant provides contacts' names and home phone numbers.

EMERGENCY RESPONSE TRAILER INVENTORY

Compartment #1

TRAY "A"

1. (3) Rolls of Aluminum Tape
2. (1) Roll of Lead Tape

TRAY "B"

1. (2) Cans of Penetrating Oil
2. (6) Rolls of Teflon Tape
3. "Skill" Cordless drill and screwdriver (does not work)
4. Drill bit set (1/16 to 3/8")
5. Pressure Gage (0 to 15#)
6. 2" Carbon steel screwed plug
7. Leather Brief case with the following:
 - a. Pencils, pens, paper, knife, Master lock, C12 "C" book (instructions)

TRAY "C"

1. Fitting for Rupture disk on HCN RR car
2. Large 3/4" drive ratchet and extension
3. Sockets — 3/4" drive sizes: 1 13/16", 1 3/8", 1 5/16", 1 3/16 1/2" drive size: 1 1/4"
4. (4) Cans Liquid wrench penetrating liquid
5. Small bolt cutters
6. (2) boxes of assorted Studs with Nuts
7. 3/8 x 7/8" set screw
8. (5) Metal seals
9. 3/4" Tap

Tray "D"

1. Duct Tape
2. Large Metal Seals

Tray "E"

1. Assorted Teflon gaskets
2. Oxygen welding regulator (Victor)
3. HCN tank car angle valve
4. Carbon steel screwed cap (4")
5. Assorted sizes and shapes of gaskets (Rubber, Teflon, and Lead)

Tray "F"

1. Tools: (4) pair. channel locks, (2) hammers, hatchet, wire cutters, wedge, lg. center punch, lg. valve wrench, lg. screw driver, lg. crescent wrench, 10" pipe wrench, hacksaw, metal thermometer case, (4) rolls of Teflon tape, (2) rolls string
2. RR car air tank connections
3. 3/4" metal screwed cap

Tray "G"

Tray "H"

1. Capping Devices
2. Small chain
3. Polypropylene rope
4. Metal plate (6 x 12")
5. (2) hammers
6. (2) Dome locks
7. (1) HCN tank car valves
8. (4) Chain binders
9. (2) HCN tank car relief valves

EMERGENCY RESPONSE TRAILER INVENTORY

Compartment #4

Tray "A"

1. (7) Straps for tightening
2. Air hoses
3. Pressure bags for stopping leaks

Tray "B"

1. Portable eye wash station
2. Burn treatment kit
3. First Aid kit

Tray "C"

1. Assorted plugs and tools to stop leaks

Tray "D"

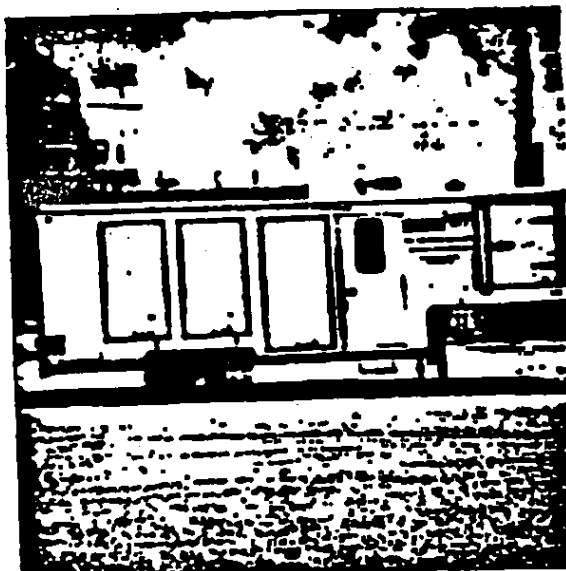
1. Barricade Reel
2. C-Clamps
3. Air Pump
4. Assorted tools

"A" "B" "C" Cl2 kits
(2) large tool boxes
Plugging kit containing wooden plugs

CIBR

HAZARDOUS MATERIAL
RESPONSE TRAILER

St. Gabriel



EMERGENCY RESPONSE TRAILER INVENTORY

OFFICE

1. Ladder
2. (2) Full Chemical Suits
3. (2) Full Chemical Suits (Heat Resistant)
4. (1) Roll of Astro turf
5. (2) Small disposal container
6. Meg horn (does not work)
7. Box of (50) Folded liners
8. (2) boxes of Putty pipe hole repair kits

EMERGENCY RESPONSE TRAILER INVENTORY

COMPARTMENT #6

1. Emergency Generator
2. (2) 5 Gallon gas cans
3. (2) Emergency flood lights
4. (1) Extension cord
5. Explosion proof drop light with cord
6. (2) Regular drop light
7. (10) Flares
8. (3) Boxes reflectors
9. (6) Flashlights
10. (2) Lanterns
11. (1) Rechargeable light

APPENDIX XIII

TABLE 7
Length of Time Required
To Exceed Application Limits
-Applied at the Same Rate Annually-

SITE #	Lead	Zinc	Nickel	Copper	Cadmium
	Years	Years	Years	Years	Years
39	47,619	400	1190	1923	1429
40	125,000	714	3125	2500	2500
41	111,000	893	3125	3571	2500
42	33,333	227	735	962	625
43	83,333	549	1471	2778	1667
High	125,000	893	3125	2778	2500
Low	33,333	227	735	962	625
Avg	80,057	557	1929	2347	1744

APPENDIX XIV

RECAL II DISTRIBUTION INFORMATION

Farmer: DOUGLAS Pirie
25543 La. Hwy 1032
DENHAM Springs, LA.
70726

Site Location: Site # 43P
P

Phone: 504-665-6445

No. of Acres: 160

Site Geology UPLAND SILT LOAM

Crop Type: LEGUME Source: Ken Sharpe Date: 8/16/94
PASTURE

Loading Rate: 2.4 T/ACRES Source: John Bruce Date: 11/22/94

Soil Analyses

pH 5.4

CEC 19.5 MEQ/100g

Moisture 0.98 %

Sampled by: Ken Sharpe

Date: 8/16/94

11/22/94
DATE ISSUED

CIBA-GEIGY Corporation
P O. Box 11, 4200 Geigy Access Rd.: Hwy 30
St. Gabriel, La. 70778
Area Code 504-642-1100

S. E. 43 f

SHIP TO.

Douglas Lind

25543 LA Hwy 1032

Denham Springs, LA 70726

504-665-6445

ORDER NUMBER:

ROUTING:

Q COLLECT

PREPAID

WEIGHT:

TALLY NO:

DATE SHIPPED:

DATE SHIPPED: as required

STOCK NO. IF APPLICABLE**QUANTITY**

UNIT

DESCRIPTION

45.

4000

Recall II

Det - P

$$= 35,000 \text{ lbs / load}$$

REASON FOR SHIPMENT

pH adjustment of soil

HOME

John Bruce

A. ORIGIN SIGNATURE

COMPLETES SIGNATURE:

WHITE - Accounting. GREEN - Receiving CANARY - Purchasing PINK - Extra GOLDENROD - Purchasing
D 11842 7 81 570009 Stock #054-010-1785

RECAL II Loading Rate Calculation.

Farmer: Douglas Pivie

SITE # 43P

Site: Douham Springs - Site P

Directions: _____

pH: 5.2

Loading Rate: 4.8 Tons/acre

Number of Acres: 160 acres

Pounds to ship: 1,575,000

Trucks to ship: 45 + 10

Signature John S. Bence

Date: 11/21/94

APPENDIX XV

CIBA-GEIGY

St. Gabriel Plant
CIBA-GEIGY Corporation
P.O. Box 11
St. Gabriel, Louisiana 70776
Telephone 504-442-1100

June 20, 1988

Mr. John Koury, Administrator
Office of Solid and Hazardous Waste
State of Louisiana
Department of Environmental Quality
P. O. Box 44307
Baton Rouge, LA 70804

Re: Requests for Approval of Resource Recovery Activities
to Utilize Ciba-Geigy's Calcium Carbonate Solids as a
Soil Amendment Agent in Agricultural Applications

Dear Mr. Koury:

This is a follow-up to our submittal of a final report on
June 2, 1988 to request the approval of LDEQ Solid Waste
Division for the resource recovery of one of our waste
streams for use by local farmers.

During our meeting with your staff on May 31, 1988 we were
requested by Bijan Sharafkhani to obtain the RCRA heavy metal
actual concentrations on the calcium carbonate solids from
our Aqueous Waste Treatment Neutralization Unit. The same
sample on which the potential contaminants were determined,
as listed in Table VII of the report submitted to you on May
31, 1988, was analyzed by GSRI on June 3, 1988. The lime raw
material was also analyzed for the same heavy metals to show
the origin of any constituents found in the calcium carbonate
solids. The data in Table I shows traces of chromium and
arsenic; however, less than 1 ppm hexavalent chromium was
found, and the origin of the chromium and arsenic was shown
to be the lime raw material.

Mr. Sharafkhani also requested PCB analysis on the AWT
calcium carbonate solids. Table I shows that no PCB can be
detected in the carbonate solids.

Mr. Dale Givens of LDEQ Water Resources Division requested a
lower detection level for chloro-triazine herbicide content
than the value reported in Table VII of the May 31, 1988
report. The attached Table II shows the results after using
a method with a better detection level. Note that the
calcium carbonate solids contain <0.05 ppm herbicides.

Mr. John Koury, LADEQ

June 20, 1988
Page Two

Mr. Givens also requested GC/MS on an extract of the calcium carbonate solids in an attempt to identify any deleterious constituents. We contracted this analysis to GSRI, who solubilized the solids in dilute HCl, and ran acid extractables, base neutrals, and any other identifiable constituents by GC/MS. The results are shown in Table II. Only a trace of alkanes was found; no harmful organics were detected.

This concludes all the information submittals on this subject. We request your written approval to utilize this material as a soil amendment agent for local farmers. We would appreciate a response by June 27, 1988 in order to prepare our operations for the distribution of this material by September, 1988 when we start-up our herbicide plant. Recall that we intend to quality control each carbonate solids shipment by ensuring each shipment conforms with the characteristics shown in Table VII of the May 31, 1988 report.

If you have any questions concerning this matter, please contact me at 504/642-1257. Thank you for your time in this consideration.

Respectfully,

Richard B. Boudreau
Richard B. Boudreau
Staff Environmental Chemist

RBB:vw

Enclosures

cc: Tim Knight, LDEQ-Solid Waste
Dale Givens, LDEQ-Water Resources

bcc: John Bruce
Bill Davis
Norman Downey
Hugh Pinklea
Marty Pontenot
Al Heffernan
Mike King
Rudy Lamberth
Murry McMillan
Jude Olivier
Derek Phillips
Hellen Taylor
Bob Vignes

TABLE I

RCRA Heavy Metals in Calcium Carbonate Solids
and Lime Raw Material

<u>Metal</u>	<u>Lime Raw Material</u>	<u>AWT Calcium Carbonate Solids</u>
As, ppm	1.4	1.4
Ba, ppm	<0.5	<0.5
Cd, ppm	<0.5	<0.5
CR, ppm	24.0	14.0
CR (Hexavalent), ppm	<1.0	<1.0
Pb, ppm	<0.5	<0.5
Hg, ppm	<0.5	<0.5
Si, ppm	<0.5	<0.5
Ag, ppm	<0.5	<0.5
PCB, ppm	<5	<5
Chloro-triazine Herbicides, ppm	<0.05	<0.05

TABLE II

GC/MS Analysis of AWT Carbonate Solids*

	<u>AWT Carbonate Solids</u>	<u>Lime Raw Material</u>
Alkanes, ppm	25	<0.5
Acid Extractables, ppm	<0.5	<0.5
Base Neutrals, ppm	<0.5	<0.5

*Solubilized in dilute HCl.

APPENDIX XVI

**BACKGROUND SOILS METALS DATA FOR
AGRICULTURAL SOILS
PAST RECAL II SITES
(From 43 Farmers and 55 Sites)
COMPARED TO RECAL II METALS CONCENTRATIONS**

Soils data from Louisiana Department of Agriculture and Forestry
Soils Testing Lab (LSU) through La. Cooperative Extension
Service. Recal II data from Ciba Corporation

	<u>SOIL</u>		<u>RECAL II</u>	
	<u>ppm</u>		<u>ppm</u>	
	<u>Avg</u>	<u>Max</u>	<u>Avg</u>	<u>Max</u>
Arsenic_____	1.99	25.9	11.9	31.0
Barium_____	206.38	657	99.4	290.0
Cadmium_____	0.24	1.28	1.2	4.8
Chromium-(Total)_____	15.09	29.7	19.9	90.0
Copper_____	12.05	77	8.2	62.0
Lead_____	25.43	80	1.4	3.0
Mercury_____	0.18	3.7	<0.10	0.12
Nickel_____	20.98	47	18.6	45.0
Selenium_____	15.39	42	<1	<1
Silver_____	0.28	3	<0.5	<2.0
Zinc_____	43.34	103	100.1	252.0

APPENDIX XVII

ciba

Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, LA 70776

Telephone 504 642 1100

May 29, 1996

CERTIFIED MAIL NO. Z 081 658 791

Mr. William Mollere, Administrator
State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
P. O. Box 82178
Baton Rouge, Louisiana 70884-2178

RE: REQUEST FOR EXEMPTION FROM LAC 33:VII.1109.E AS PART OF CIBA
BENEFICIALIAL USE PERMIT APPLICATION FOR RECAL II

Dear Mr. Mollere:

Ciba-Geigy Corporation, St. Gabriel Plant requests an exemption from the facility standard of subsurface hydrology stipulated in the LDEQ standards governing Beneficial Use facilities as written in LAC 33:VII. 1109.E. This standard requires that the subsurface for a beneficial use facility have a 3 ft. from ground surface (minimum) historic high water table.

The attached exemption request document is formatted as stipulated in the Louisiana Solid Waste Regulations according to LAC 33:VII.307.B and C.

The attached document includes the supporting documentation for the justification for the exemption Ciba is seeking. The attachments also includes copies of proof of publication of Ciba's public notice of the intent to seek this exemption.

Thank you for your assistance in this permit application. Please expedite issuance of this permit, since there continues to be farmers seeking delivery of this material.

If you have any questions concerning these responses, please contact me at (504) 642-1257.

Sincerely,

Richard B. Boudreau

Richard B. Boudreau
Senior Staff Environmental Engineer

REQUEST FOR EXEMPTION FROM LAC 33:VII.1109.E

FOR RECAL II BENEFICIAL-USE AS

AN AGRICULTURAL LIMING AGENT

By:

**CIBA-GEIGY CORPORATION
ST. GABRIEL, LOUISIANA PLANT**

May 29, 1996

LAC 33:VII.307B.

Each request for an exemption must:

1. Identify the specific provisions of these regulations from which a specific exemption is sought.

The specific provisions of the Louisiana Solid Waste regulations from which a specific exemption is sought are:

LAC 33:V.II.1109.E Facility Subsurface Hydrology. The following standard applies to subsurface hydrology for beneficial-use facilities: The facilities should be located in a hydrologic section where the historic high water table is at a minimum of a three-foot depth below the zone of incorporation, or the water table at the facility shall be controlled to a minimum of a three-foot depth below this zone.

2. Provide sufficient justification for the type of exemption sought, which includes, but may not be limited to, the following demonstrations:

- a. That compliance with the identified provisions would tend to impose an unreasonable economic, technologic, or safety burden on the person or the public; and

This requirement places an unreasonable technological burden on the farmers who use RECAL II on their farms because they have no documentation that the water table for their farms are controlled to a minimum of a three-foot depth below the zone of incorporation. This requirement also places an unreasonable economic burden on the farmers who want to use RECAL II to guarantee that their land meets this requirement. There is no reasonable cost method either for the farmer or for the Louisiana Cooperative Extension Service to use to ensure that all locations meet this requirement. The expense for determining the groundwater table at each site and the much smaller economic benefit resulting from limiting to only those which have a minimum of three-foot depth below the zone of incorporation would result in Ciba sending the material to a landfill. If Ciba had to send this material to a landfill, such a situation would be an adverse environmental impact, because a usable, safe material would occupy landfill space which could be occupied by an unusable, unsafe material.

- b. That the proposed activity will have no significant adverse impact on the public health, safety, welfare, and the environment, and that it will be consistent with the provisions of the act.

The following information leads to the conclusion that RECAL II use as a liming agent in Louisiana will have no adverse impact on the public health, safety, welfare, and the environment, and it will not only be consistent with the provisions of the act, but will also be an environmental benefit:

- (1) A hydrogeological review of the RECAL II sites data from 1989-95 and a review of the US Department of Agriculture's Soil Conservation Surveys for the applicable parishes were performed by Geraghty and Miller, Inc., for Ciba. A copy of the report is provided in Attachment 1. The following were the general conclusions:
 - 23 of 55 sites likely had high water tables exceeding 2.5 ft from surface
 - 28 of 55 sites could have had high water tables exceeding 3 ft, but some of these may have been less than 3 ft because the typical values according to the soil surveys were 1-4 ft
 - 4 of 55 sites likely had high water tables less than 3 ft from ground surface based on the soil survey
 - No groundwater was detected in the 2.5 ft core samples taken by the Louisiana Cooperative Extension Service on the first ten sites.
- (2) A hydrogeological survey of the groundwater table at the Ciba, St. Gabriel Plant shows that the groundwater table is typically from 2.8-5.6 (3.5 avg) ft bsl., which should be representative of Iberville Parish. See Attachment 2 for a copy of the report.
- (3) Farmers cannot grow crops or till soil on land where the high water table is less than 1 ft below ground surface.
- (4) Penetration studies have shown that liming agents do not penetrate Louisiana soils further than 1 ft below ground surface. See the copy of the report from the LSU Agronomy Department provided in Attachment 3.
- (5) RECAL II is virtually the same as conventional agricultural limestone except that the RECAL II major contaminant, entrained

Ciba-Geigy Corporation, St. Gabriel Plant, requests an exemption from LAC 33:VII.1109.E, facility subsurface hydrology standard because the information cited above justifies such an exemption. LAC 33:VII.1109.E should not be applicable to RECAL II. The standard applies to solid waste application to the ground at a single facility which uses a solid waste such as composting or land organic enrichment with biological sludge. The beneficial use of RECAL II is for multiple farmlands rather than a single "land disposal facility" which wants to use a material on its land.

ATTACHMENT 1

GERAGHTY AND MILLER, INC. REPORT
ON HIGH WATER TABLE DATA REVIEW
FOR BATON ROUGE AREA PARISHES

LA1337.001

May 23, 1996

Mr. Richard Boudreau
Senior Staff Environmental Engineer
Ciba-Geigy Corporation
P.O. Box 11
St. Gabriel, LA 70776

Subject: Hydrogeological Survey for Recal II Sites in the Parishes of East Baton Rouge, West Baton Rouge, East Feliciana, Iberville, Ascension, Pointe Coupee, and Livingston.

Dear Mr. Boudreau:

As requested by Ciba-Geigy Corporation (Ciba), Geraghty & Miller, Inc., (Geraghty & Miller) performed a hydrogeological survey for selected properties located in the above-referenced parishes. The primary objective of the survey was to document the high water table elevation at specific farm sites which have received Recal II shipments from Ciba. This letter report has been prepared to document the results of the survey.

Since 1989, Recal II shipments have been provided to farmers in the Parishes of East Baton Rouge, West Baton Rouge, East Feliciana, Iberville, Ascension, Pointe Coupee, and Livingston. There are no site-specific data related to historic maximum water table elevations at these locations. However, the Soil Conservation Service has published Soil Surveys for the Parishes of East Baton Rouge, West Baton Rouge and Pointe Coupee (combined), Iberville, Ascension, and Livingston. With the exception of the East Baton Rouge Parish Survey, these Soil Surveys include ranges of high water table elevations expected for each soil type. The Soil Survey for East Baton Rouge Parish does not have information on the expected high water table elevation. As outlined in the next paragraph, Ciba and the Louisiana Cooperative Extension have site-specific qualitative data regarding "typical" depths to the water table at several of the Recal II farm sites located in East Baton Rouge Parish. Table 1 presents a summary of the water table information collected as a result of the review of site-specific data, comparisons with other sites located in similar geographic settings, and/or the review of parish-specific soil surveys.

The Louisiana Cooperative Extension Service has collected soil samples from ground surface to a depth of 2.5 feet below ground surface (ft bgs) at 15 of the sites. The Olivier Silt Loam was sampled at 10 of the locations, including farms in Zachary, Greenwell Springs, Pride, and Port Hudson. According to Mr. John Roy, the East Baton Rouge Parish County Agent for the Louisiana Cooperative Extension Service, water table conditions were not encountered in any of the borings.



Mr. Richard Boudreau

May 23, 1996

Page 2

A review of the other Recal II site listings for which no site-specific data are available, indicates that 10 of the sites are located in northern East Baton Rouge Parish on soils associated with the Olivier Silt Loam. The geographical locations and soil associations for these 10 sites indicate that the water table is probably located more than 2.5 ft bgs at these locations.

Two of the Recal II sites are found in Olivier silt loam soils in Ascension Parish. The Soil Survey for Ascension Parish indicates that the high water table is found from land surface to a depth of 3 ft bgs.

Thirteen of the Recal II sites are situated in and around the Louisiana State University complex. The soils in this area are comprised of the Sharkey Clay and the Mhoon silty clay. As noted previously, the high water table elevations are not given in the Soil Survey for East Baton Rouge Parish. However, since this area is situated on the natural levee of the Mississippi River, the water table is expected to be encountered at 1 to 4 ft bgs.

Fifteen of the Recal II sites are located on Commerce silty loam sediments in West Baton Rouge Parish/ Pointe Coupee Parishes. The Soil Survey for these parishes indicates that the high water table is typically located at a depth of 1.5 - 4.0 ft bgs.

Three of the Recal II sites are located in East Feliciana Parish. A Soil Survey has not been completed for this Parish by the United States Department of Agriculture. However, the soil conditions are expected to be similar to those encountered in northern East Baton Rouge Parish. As noted previously, the borings completed to 2.5 feet at the Recal II sites in northern East Baton Rouge Parish did not encounter the water table.

One of the Recal II sites is located near Bayou Goula, Louisiana. The Soil Survey for Iberville Parish indicates that the soils in this area are comprised of Commerce silty loam and Vacherie silty loam soils. The high water table is typically encountered from 1.5 - 3.0 ft bgs in this area.

One of the Recal II sites is located in Livingston parish. The Soil Survey indicates that the soils in this area are comprised of the Olivier Silty Loam. The high water table is typically encountered at a depth of 1.0 to 2.5 ft bgs.

In summary, the review of Soil Surveys and qualitative data collected by Ciba and the Louisiana Cooperative Extension Service indicates the following:

- 23 of 55 sites appear likely to have a high water table greater than 2.5 feet;

Mr. Richard Boudreau
May 23, 1996
Page 3

- 28 of 55 sites may have a high water table greater than 3 feet; and
- 4 of 55 sites are likely to have a water table less than 3 feet.

Geraghty & Miller is pleased to provide our consulting services to Ciba, and if you should have any questions concerning this information, please call us.

Sincerely,

GERAGHTY & MILLER, INC.

Thomas S. Isacks

Thomas S. Isacks, CPG
Project Hydrogeologist

Rudy J. Guichard
Rudy J. Guichard
Associate/Office Manager

TSI:RJG:crg
Attachment

Cibagci/L/11

GERAGHTY & MILLER, INC.

TABLE

Table 1. Summary of Water Table Information Relative to Recal II Sites in Louisiana,
Ciba-Geigy Corporation, St. Gabriel, Louisiana

Number of Sites	Parish	Soil Type	Water Table Depth Below Ground	Reference
10	E. Baton Rouge	Olivier Silty Loam	> 2.5 ft	Site Specific Data
10	E. Baton Rouge	Olivier Silty Loam	> 2.5 ft	Similar geographically to farms with site specific data
13	E. Baton Rouge- LSU	Sharkey Clay/ Mhoon Silty Clay	1-4 ft	Comparison with other areas in similar natural levee physiographic setting
15	Pointe Coupee/ W. Baton Rouge	Commerce Silty Loam	1.5-4 ft	Soil Survey
1	Iberville Parish	Commerce Silty Loam and Vacherie Silty Loam	1.5-3 ft	Soil Survey
3	East Feliciana	Olivier Silty Loam	> 2.5 ft	Similar geographically to farms with site specific data
1	Livingston	Olivier Silty Loam	1-2.5 ft	Soil Survey
2	Ascension	Olivier Silty Loam	0-3 ft	Soil Survey



ATTACHMENT 2

REPORT ON GROUNDWATER TABLE

FOR CIBA-ST. GABRIEL PLANT

CIBA-GEIGY

Interoffice
Correspondence

St. Gabriel Plant
CIBA-GEIGY Corporation

To: Richard Boudreau
Location:

From: Tom Isacks
Location:

Date: March 2, 1995

Subject: Response to Request for Information Related to Groundwater Conditions for Ciba St.
Gabriel Plant

The attached written sections (Attachment A) have been prepared to summarize groundwater conditions for the Ciba St. Gabriel Plant. The discussion is based on existing information which is in the public domain (primarily from boring logs and/or discussions from RFI reports submitted to EPA and LDEQ).



Attachment A



Regional Hydrogeology

The Ciba Plant is located on the eastern cutbank side of the Mississippi River near River Mile 200. The hydrogeology of the area reflects depositional features and hydraulic controls associated with the riverine deposits of the Mississippi River. The Geologic Map of Louisiana indicates that the facility is located on natural levee deposits composed primarily of silts, silty clays, and fine sands (Louisiana Geological Survey, 1984). The riverine deposits of the Mississippi River in the St. Gabriel area are typically comprised of more than 110 feet of clayey sediments overlying sandy sediments associated with the Plaquemine Aquifer. The Plaquemine Aquifer provides drinking and process water for the St. Gabriel Plant. Well construction diagrams for the five process wells indicate that Well A is screened from 139 to 186 and 196 to 217 ft bls, Well B is screened from 138 to 208 ft bls, Well C is screened from 136 to 216 ft bls, Well D is screened from 140 to 190 ft bls, and Well E is screened from 149 to 230 ft bls. Boring logs from production well completions at Ciba indicate that the Plaquemine fines upward from a basal coarse sand and gravel to medium- and fine-grained sand at the top of the aquifer. The average thickness of this sand and gravel deposit is approximately 115 feet. Sand deposits associated with the Lower Sands of the Plaquemine Aquifer may occur below the clay deposit encountered at approximately 215 ft bls.

Land surface at the plant is approximately 20 feet NGVD near the river and the elevation declines to about 15 feet eastward in the backswamp area. The flow of the Mississippi River is confined by natural levee deposits, which causes the river stage to be higher than the elevation of most of the adjacent flood plain. Because the river stage is higher than groundwater levels in the flood plain for most of the year, groundwater flow is generally perpendicular to the river, from the river to the backswamp areas. Much of the groundwater is discharged to evapotranspiration and bayous in backswamp areas. Regional groundwater flow in the Plaquemine Aquifer is away from the Mississippi River when the river stage is above average and toward the Mississippi River when the river stage is below average.

Along the Mississippi River, the natural levees have been augmented by artificial levees that control river flow and artificially raise calculations for average flow since flood stages are increased in the confined river. Natural groundwater flow away from the river is greatest during the winter and spring when the Mississippi River has the largest flow and the highest river stage.

Local Hydrogeology

Water levels were collected from onsite groundwater monitoring wells in March, April, May, June, and July 1992 and December 1994 to document groundwater flow patterns for the St. Gabriel Plant. Groundwater flow maps indicate that, overall, groundwater flow in the First Permeable Zone is to the east away from the Mississippi River. As noted in the previous section, the raised (artificial) levees have caused the river stage to be higher than the elevation of most of the adjacent flood plain. Because the river stage is higher than groundwater levels in the flood plain for most of the year, groundwater flow is generally perpendicular to the river, from the river to the backswamp areas.

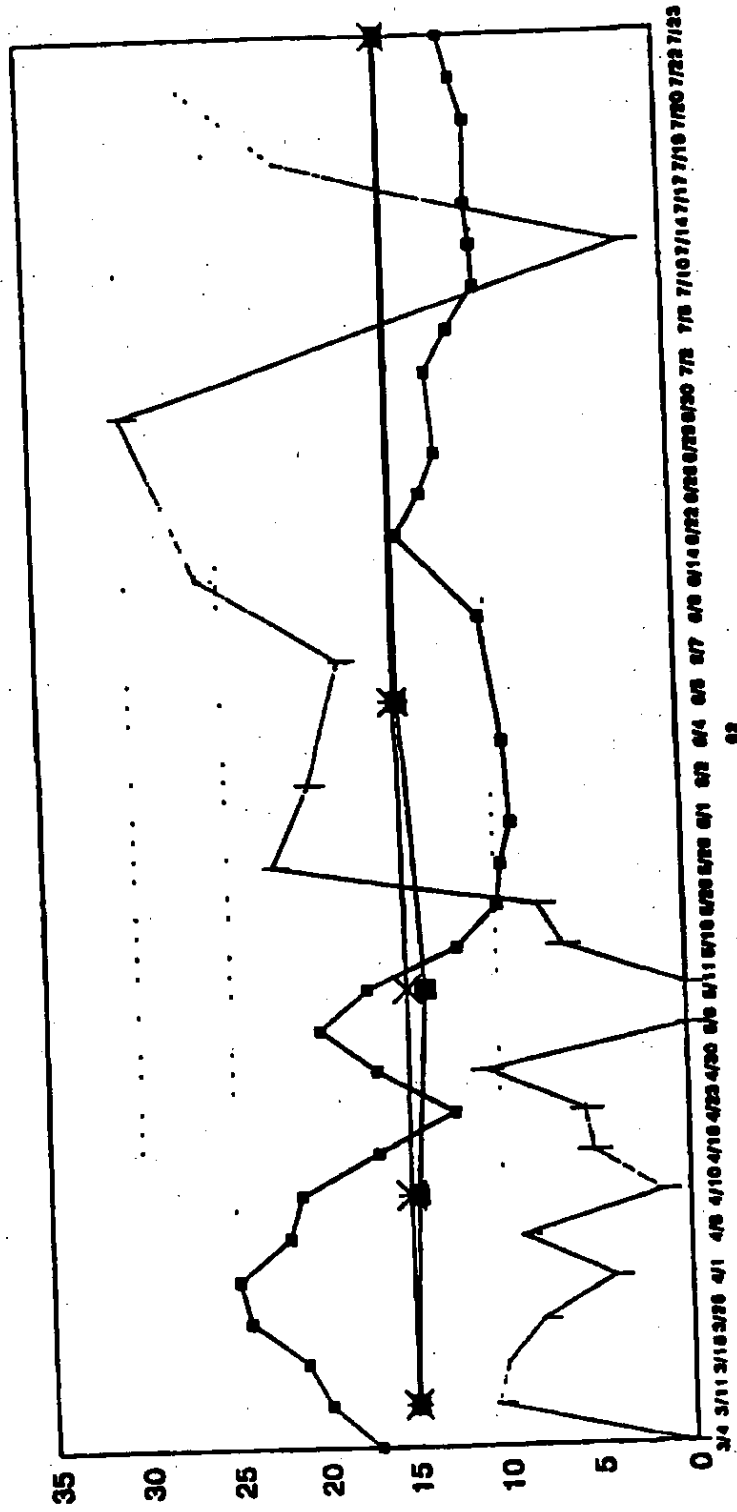
Water levels collected from Ciba monitoring wells over a 5-month period have been plotted in the form of several hydrographs. In addition to the water level elevations, Mississippi River stage elevations and rainfall data were plotted on individual hydrographs. In areas where two monitoring wells screening different zones are in close proximity, the water levels for both wells are plotted on the same hydrograph to qualitatively evaluate the direction and magnitude of vertical gradients between monitored zones. The attached hydrographs suggest that changes in river stage do not have a significant effect on shallow ground-water levels. Precipitation rates seem to have a much greater effect on ground-water level elevations. The hydrographs show that there is an upward hydraulic gradient encountered between the individual monitored zones. This upward gradient should prevent surficial contaminants from migrating vertically to the Plaquemine Aquifer.

Specific water level data for several of the shallow wells is outlined below. This data indicates that the water table is present at an approximate depth of 3.5 feet below land surface.

Well Designation	Water Level Elevation 6/5/92 (feet below land surface)	Water Level Elevation 7/23/95 (feet below land surface)	Water Level Elevation 12/13/95 (feet below land surface)
SW-1R	2.74	2.76	3.19
SW-5R	5.43	5.17	5.6
105R	3.3	2.95	3.75



Hydrograph- Wells EPDW-1 and SW-4R



— Miss. River Stage El. — Precipitation

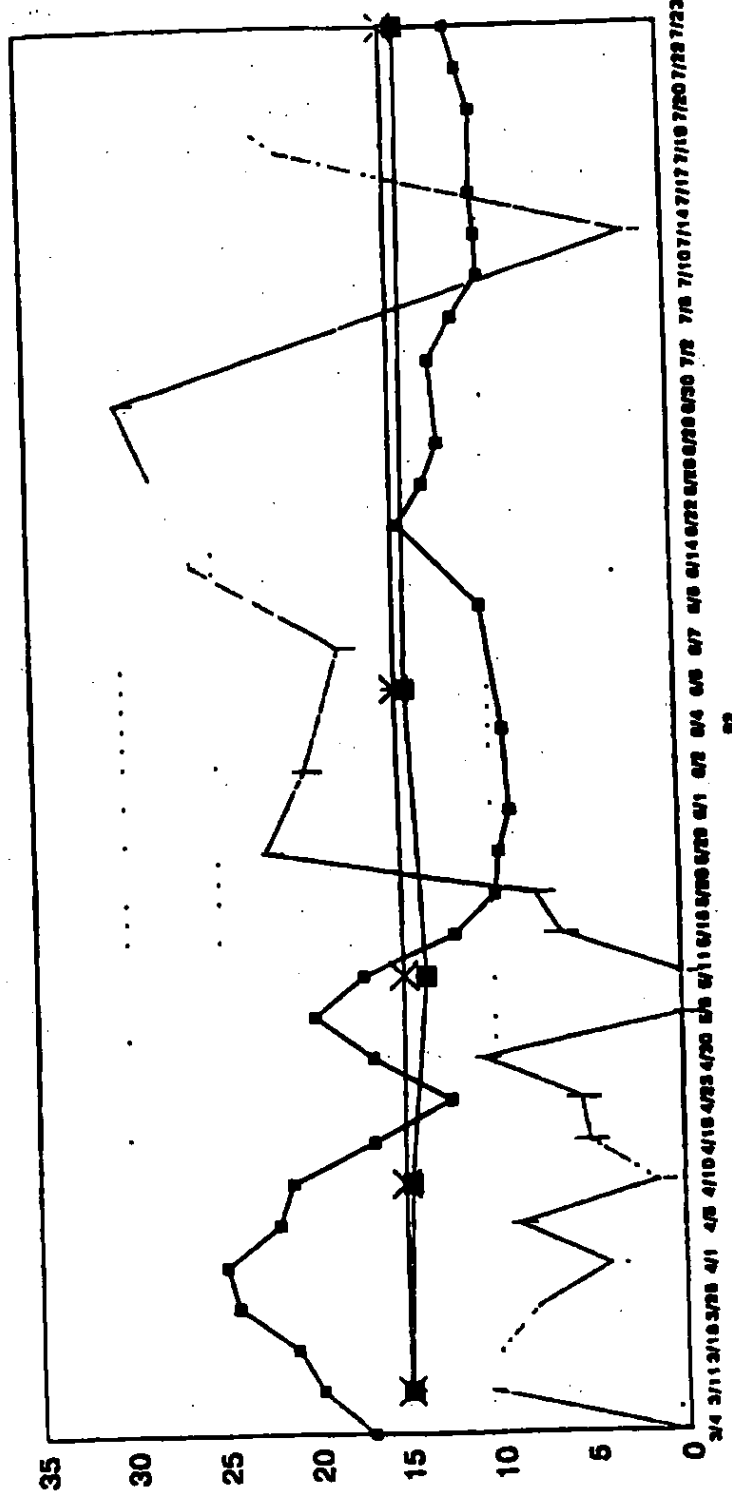
* EPDW-1 (57.5 ft bls) * SW-4R (16.5 ft bls)

Precipitation values are cumulative between indicated dates (inches x 10)

Water level values and stage elevations are given in feet NGVD

In order to keep graph legible, rainfall for 6/30/92 was reduced from 67 to 30

Hydrograph- Wells EPDW-1 and SW-3R



—•— Miss. River Stage El. — Precipitation

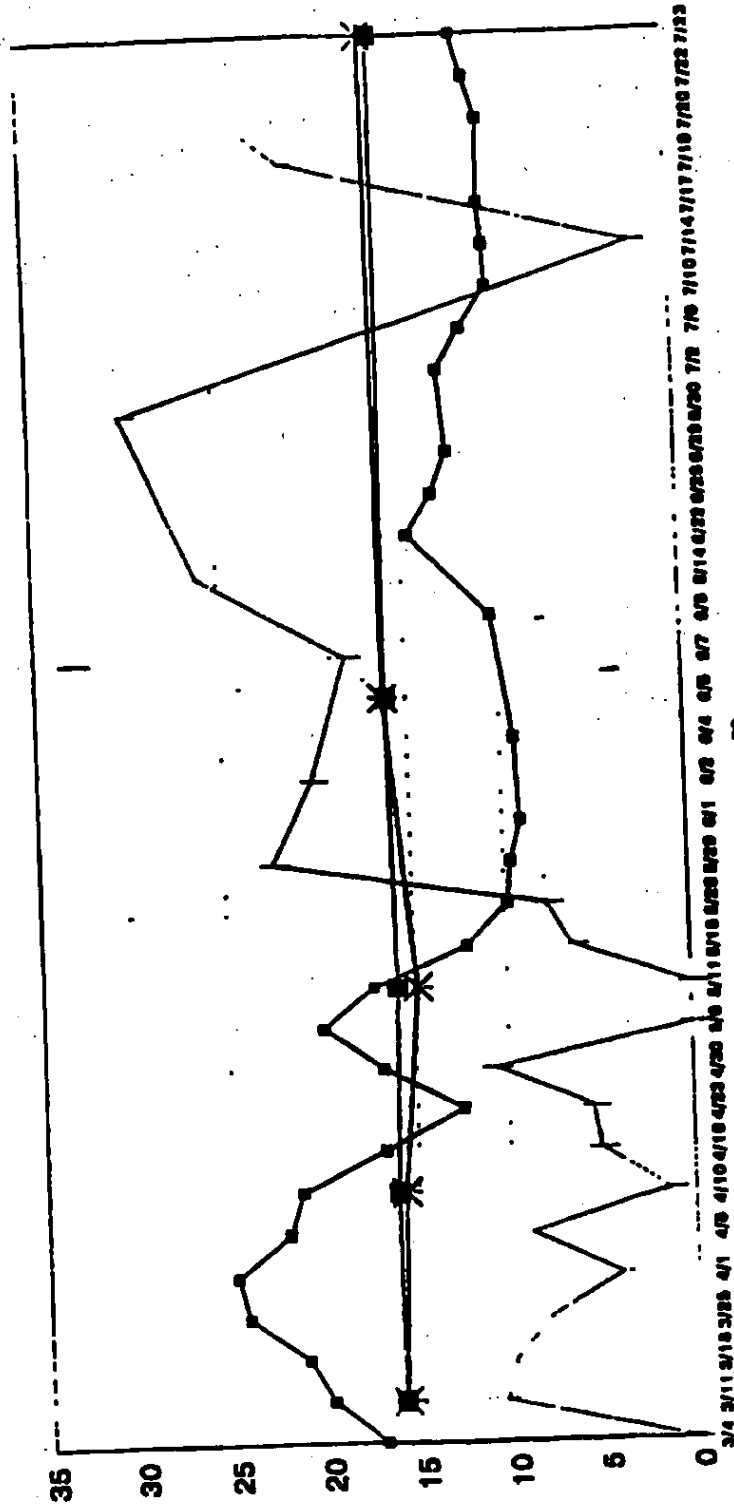
* EPDW-1 (57.5 ft bls) —■— SW-3R (32.0 ft bls)

Precipitation values are cumulative between indicated dates (inches x 10)

Water level values and stage elevations are given in feet NGVD

In order to keep graph legible, rainfall for 6/30/92 was reduced from 67 to 30

Hydrograph- Wells WBGAW-1 and WBGDW-1



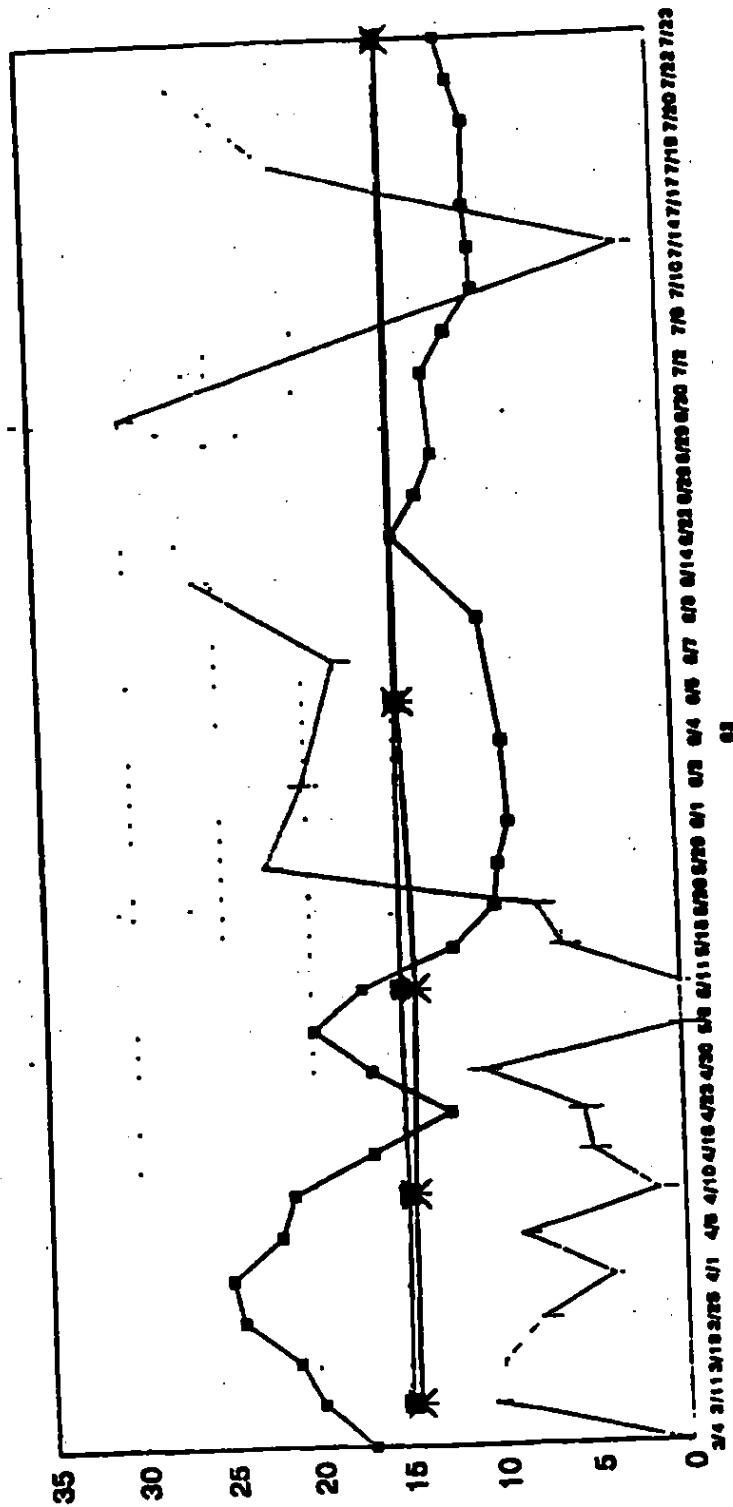
—■— Miss. River Stage El. | Precipitation

* WBGAW-1 (17.5 ft bls) —■— WBGDW-1 (48 ft bls)

Precipitation values are cumulative between indicated dates (inches x 10)

Water level values and stage elevations are given in feet NGVD
In order to keep graph legible, rainfall for 6/30/92 was reduced from 67 to 30

Hydrograph- Wells SW-1R and SW-2R

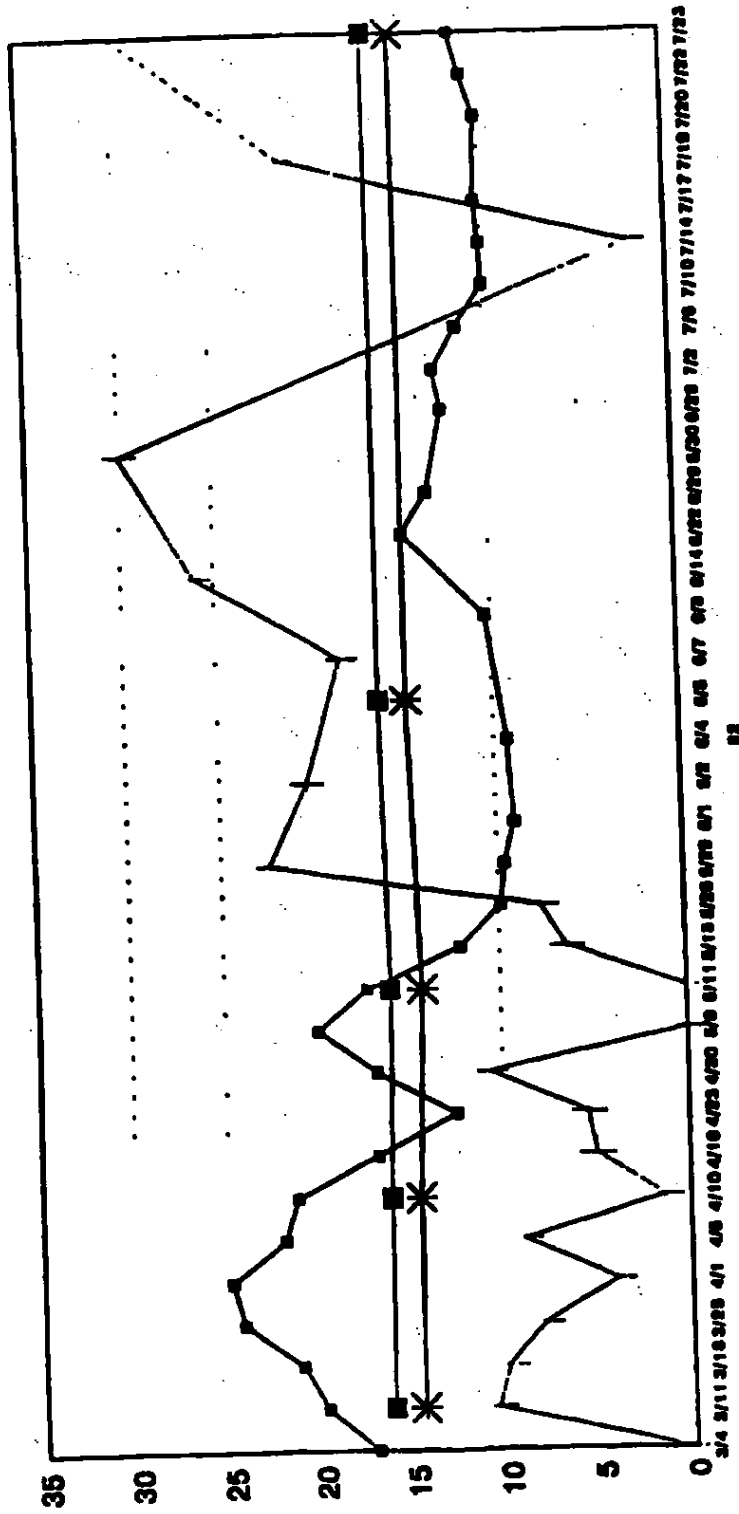


+ Miss. River Stage El. + Precipitation
 * SW-1R (12.0 ft bls) ■ SW-2R (32 ft bls)

Precipitation values are cumulative between indicated dates (inches x 10)
 Water level values and stage elevations are given in feet NGVD
 In order to keep graph legible, rainfall for 6/30 was reduced from 67 to 30



Hydrograph- Wells SW-1R and SF1DW-1



-- Miss. River Stage El. + Precipitation
 * SW-1R (12.0 ft bls) -- SF1DW-1 (58.5 ft bls)

Precipitation values are cumulative between indicated dates (inches x 10)
 Water level values and stage elevations are given in feet NGVD
 In order to keep graph legible, rainfall for 6/30/92 was reduced from 67 to 30

ATTACHMENT 3

REPORT ON LIMING AGENT PENETRATION STUDY
BY LSU AGRONOMY DEPARTMENT



DEPARTMENT OF AGRONOMY

LOUISIANA AGRICULTURAL EXPERIMENT STATION
LOUISIANA STATE UNIVERSITY AGRICULTURAL CENTER

104 Meador B. Shreve Hall
Baton Rouge, LA 70803-6110
804-388-6110
FAX 804-388-1423

November 8, 1990

Mr. John D. Roy, County Agent
805 St. Louis Street
Baton Rouge, LA 70802

Dear John:

In response to your request for recommendations on depth of sampling of soils that have been limed, I have looked at the data from a 5 year study we just completed at Wigginsboro, LA. In this test on an acid Gigger silt loam which is very similar to the acid silt loam soils of East Baton Rouge Parish we looked at the effects of standard agricultural lime on soil pH and extractable calcium (Ca) with depth. As you can see in Table 1 there was a nice increase in pH in the 0-6" layer from two tons of lime applied in 1986. However, there was little or no effect on the 6-12" layer and certainly not below this layer.

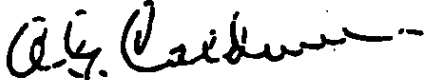
In Table 2 we have the extractable Ca with depth over the five years. Again we found a substantial increase in the 0-6" layer. This is a measure of the increase in soluble or exchangeable Ca that comes about as the CaCO_3 of the lime reacts with the carbonic acid of the soil. There may have been a little increase in the 6-12" layer but no change, beyond experimental error, in the deeper layers as a result of lime applications.

These results are in harmony with most research with lime that have found that it does not move much beyond the layer in which it is applied and mixed by plowing. One exception might be very sandy soils (watermelon sands) such as are found in Florida. There they have experienced some downward movement of finely ground lime in the very coarse sands.

These data and most of the literature on lime would support examining only the upper 0-12 or at the most the 0-18 inch layers for lime movement. This would seem to apply also to by-product limes that contain some hydroxides of calcium and magnesium as well as carbonates. The hydroxides would be almost immediately converted to carbonates when spread and exposed to CO_2 and carbonic acids in soils. Therefore they should perform much like standard agricultural limes after the initial reactions at the time of application. Generally these by-product lime materials perform well where a quick pH change and/or a readily available source of calcium is needed. Due to the smaller particle size than most agricultural lime, the reaction is relatively more rapid.

I trust that these recommendations will be useful in monitoring the reaction of
limes with soils in your studies in East Baton Rouge Parish.

Sincerely,



A. G. Caldwell
Professor of Agronomy
(Soil Chemistry)

AGC:cr

cc: Jesse Holder.
Eddie Funderberg

Table 1. Mean pH with depth and time after application of 2 tons of lime per acre on a Gigger silt loam at Winnsboro, LA.

No lime							
Depth	yr.→	86	87	88	89	90	5yr. mean
0-6"		5.0	5.3	5.2	5.3	5.3	5.2
6-12"		4.6	4.8	4.8	4.4	4.7	4.6
12-18"		4.8	4.7	4.8	4.3	4.6	4.6
18-24"		5.0	4.8	4.8	4.6	4.8	4.8
24-30"		5.2	5.0	5.0	4.9	4.9	5.0
30-36"		5.5	5.3	5.3	5.1	5.3	5.3

2T lime/acre							
Depth	yr.→	86	87	88	89	90	5yr. mean
0-6"		5.8	5.9	6.0	6.2	6.3	6.0
6-12"		4.7	4.8	4.9	4.6	4.8	4.8
12-18"		4.8	4.7	4.8	4.4	4.6	4.7
18-24"		5.0	4.8	4.8	4.6	4.7	4.8
24-30"		5.2	5.0	4.9	4.7	4.8	4.9
30-36"		5.3	5.1	5.0	4.9	5.0	5.1

Table 2. Mean extractable Ca with depth and time after application of 2 tons of lime per acre on a Gigger silt loam at Winnsboro, LA.

No lime							
Depth	yr.→	86	87	88	89	90	Syr. Mean
0-6"		829	865	808	874	872	849
6-12"		565	584	564	687	640	608
12-18"		562	577	554	626	691	602
18-24"		522	492	476	575	578	529
24-30"		636	538	512	546	556	558
30-36"		775	651	633	660	673	678
2T lime/acre							
Depth	yr.→	86	87	88	89	90	Syr. mean
0-6"		1111	1167	1236	1375	1264	1231
6-12"		676	747	783	814	791	762
12-18"		504	469	485	631	609	539
18-24"		371	341	373	326	428	368
24-30"		428	348	354	269	362	352
30-36"		516	418	409	284	426	411

ATTACHMENT 4

PROOF OF PUBLICATIONS
FOR EXEMPTION REQUEST
PUBLIC NOTICE

POST SOUTH

STATE OF LOUISIANA
PARISH OF IBERVILLE

BEFORE ME, the undersigned authority, personally came and appeared:

Joyce S. Hebert

who after being duly sworn, deposed and said: That she is the publisher of the POST/SOUTH, a newspaper published weekly in the Parish of Iberville, State of Louisiana. That the advertisement attached hereon was published in the POST/SOUTH on the 16th day of may, 1996.

Joyce S. Hebert
Joyce S. Hebert

SWORN TO AND SUBSCRIBED BEFORE ME this 21st day of may, 1996.

PUBLIC NOTICE

Notice is hereby given that Ciba Corporation, St. Gabriel La. Plant, in Iberville Parish, intends to submit to the Louisiana Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid Waste Division, a request for exemption from LAC 33: VII.1109 E for the beneficial reuse of recyclable calcium carbonate (Recal II) as an agricultural soil liming agent for Louisiana farmers.

Comments concerning this exemption request may be filed with the Secretary of the Louisiana Department of Environmental Quality at the following address:

State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
Permit Section
P.O. Box 82178
Baton Rouge, Louisiana 70884-2178

Mary E. Hebert
Mary E. Hebert
Notary Public

CAPITAL CITY PRESS

Publisher of

THE ADVOCATE

PROOF OF PUBLICATION

PUBLIC NOTICE

Notice is hereby given that Ciba Corporation, St. Gabriel, La. Plant, in Iberville Parish, intends to submit to the Louisiana Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid Waste Division, a request for exemption from LAC 33: VII.1109 E. for the beneficial reuse of recyclable calcium carbonate (Recal II) as an agricultural soil liming agent for Louisiana farmers.

Comments concerning this exemption request may be filed with the Secretary of the Louisiana Department of Environmental Quality at the following address:

State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
Permit Section
P.O. Box 82178
Baton Rouge, Louisiana 70884-2178

The hereto attached notice was published in THE ADVOCATE, a daily newspaper of general circulation, published in Baton Rouge, Louisiana, and the Official Journal of the State of Louisiana, the City of Baton Rouge and the Parish of East Baton Rouge, in the issues of:

MAY 11, 1996

David Musella
Advertising Representative

Sworn and subscribed before me by the person whose signature appears above in Baton Rouge, La. on this

11 MAY 1996 AC
day of *May*
[Signature]
Notary Public

My Commission Expires:

Indefinite

20350/942759
EXEMPTION REQUEST

APPENDIX XVIII



State of Louisiana
Department of Environmental Quality



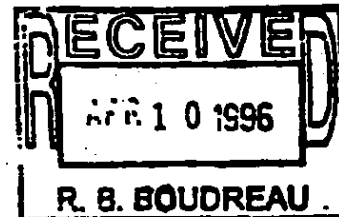
MI. MIKE FOSTER JR.
GOVERNOR

April 8, 1996

J. DALE GIVENS
SECRETARY

CERTIFIED MAIL 2 441 775 463
RETURN RECEIPT REQUESTED

Mr. Richard B. Boudreau
Senior Staff Environmental Engineer
Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, Louisiana 70776



RE: Ciba-Geigy Corporation
St. Gabriel Plant
Beneficial-Use Permit Application
GD-047-0224/PA #513
Iberville Parish

Dear Mr. Boudreau:

The Solid Waste Division has completed its review of your Permit Application for the above-referenced facility dated February 6, 1996. The following comments are presented regarding items not considered in conformity with the applicable sections of the Louisiana Solid Waste Regulations.

TECHNICAL REVIEW:

- 1105.I Provide letter (LRRDA) referenced in this section.
- 1105.N Provide the third party documentation as required in LAC 33:VII.1103.B.
- 1107 The regulatory requirements in 1107 (Part II) shall be included in the permit application with the responses immediately following.
- 1107.E.1 Incorporate the standards in 1109.F.1.a-h into the response to this section.
- 523.A-E (Part III) Address these sections.

ENGINEERING REVIEW:

- Part I.L Is the waste excess, unused commercial calcium carbonate or is it the spent calcium carbonate which is in contact with or

OFFICE OF SOLID AND HAZARDOUS WASTE SOLID WASTE DIVISION P.O. BOX 82178 BATON ROUGE, LOUISIANA 70884-2178

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REC-243 DADO



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contaminated with solid waste in the wastewater treatment system? Contaminated spent calcium carbonate is considered solid waste (see definition of solid waste and industrial solid waste).

If Recal II is solid waste, please correct the sentence "Ciba does not agree that this material should be classified as a waste under the definition of solid waste". If it is not solid waste, then it is not regulated under the Solid Waste regulations.

1107.F.I -

Please clarify whether or not Recal II is spent calcium carbonate generated from the treatment of waste; is it in contact with or contaminated with seven (7) waste streams? Identify the key contaminants and concentration limits of each contaminant in the Recal II.

GEOLOGICAL REVIEW:

1109.E

Address this section or submit an exemption request in accordance with LAC 33:VII.307.

Your responses to these deficiencies shall be sent to this office within (30) days of receipt of this letter. Please refer to the sections and denoted regulations when responding to the comments. Additionally, four (4) copies of your response including appendices, shall be provided.

If you have any questions concerning this matter, please contact Ms. Yolunda Righteous (Technical Review), Mr. Hoa Van Nguyen (Engineering Review), or Mr. Robert Frischhertz (Geological Review) of the Solid Waste Division at (504) 765-0249.

Sincerely,



William J. Mollere
Administrator
Solid Waste Division

WJM:YR:jd



Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, LA 70776

Telephone 504 642 1100

May 20, 1996

Mr. William Mollere, Administrator
State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
P. O. Box 82178
Baton Rouge, Louisiana 70884-2178

**RE: RESPONSE TO LETTER OF LACK OF CONFORMITY OF BENEFICIAL
USE PERMIT APPLICATION TO LOUISIANA SOLID WASTE
REGULATIONS**

Dear Mr. Mollere:

Ciba-Geigy Corporation, St. Gabriel Plant received your letter of April 8, 1996, listing items in the Beneficial Use Application for RECAL II, which were cited as lacking conformity with the Louisiana Solid Waste Regulations. A copy of this letter is provided in Attachment 1 of the enclosed document. The enclosed are Ciba's responses and corrective measures to these items your staff has cited in the referenced letter.

Thank you for your assistance in this permit application. Please expedite issuance of this permit, since there continues to be farmers seeking delivery of this material.

If you have any questions concerning these responses, please contact me at (504) 642-1257.

Sincerely,

Richard B. Boudreau
Senior Staff Environmental Engineer

RESPONSES TO NON-CONFORMITIES FOR THE
CIBA RECAL II BENEFICIAL-USE PERMIT APPLICATION

The following are the corrections, responses, and information addressing the non-conformities cited in the LDEQ correspondence of April 8, 1996:

TECHNICAL REVIEW

Non-Conformity

1105.I Provide letter (LRRDA) referenced in this section.

Response

The Louisiana Resource Recovery and Development Authority Letter of Conformity with the Statewide Plan was submitted to LDEQ through certified mail on March 27, 1996 and received by Mr. Tom Payne of LDEQ on March 29, 1996. An additional copy is provided in Attachment 2 of these responses.

Non-Conformity

1105.N Provide the third party documentation as required in LAC.33:VII.1103.B.

1103.B No permit for beneficial use can be issued by the administrative authority unless the applicant supplies written documentation from a qualified, independent third party, such as the Louisiana Cooperative Extension Service, the Louisiana Department of Agriculture, the Louisiana Department of Transportation and Development, or other appropriate organization that the proposed activity is a legitimate beneficial use of solid waste.

Response

The Louisiana Department of Agriculture and Forestry (LDAF) has approved RECAL II registration as an agricultural liming agent annually since 1989. The most recent March, 1996 letter of approval of registration from the LDAF is provided in Attachment 3 of these responses.

Attachment 4 of this submittal contains a letter of no objection from the LDEQ-Office of Water Resources prior to initial authorization to distribute in 1988. Distribution began in the first quarter of 1989.

Attachment 5 of these responses contains several letters and reports from the Louisiana Cooperative Extension Service confirming that the use of RECAL II is an environmental and economic benefit.

Attachment 6 of these responses contains two reports on the beneficial application studies of RECAL II, by LSU, Agronomy Department professors confirming that RECAL II is an effective liming agent with low concentrations of heavy metals.

Non-Conformity

1107

The regulatory requirements in 1107 (Part II) shall be included in the permit application with the responses immediately following.

Response

Part II of the original application submittal listed the subject of each regulatory subsection of Section 1107 with the responses immediately following. Upon discussion with the permit writer after receiving the lack of conformity letter, it was determined that a reformatted Part II including all of the regulatory language followed by the responses would be included in a final submittal after the non-conformity responses are reviewed and the application meets LDEQ's requirements.

1107.E.1

Incorporate the standards in 1109.F.1.a-h into the response to this section.

Response

The standards in 1109.F.1.a-h are incorporated into the responses to this section in the reformatted version provided in the final submission. Attachment 7 to these responses has a copy of this reformatted section.

Non-Conformity

523.A-E
(Part III)

Address these sections.

Response

Part III (also known as the "IT Decision" questions) was not included in the original permit application submitted because:
(1) It was not indicated by the LDEQ staff as required in the application in our meeting of 12/11/96 discussing the format;
(2) Section 523 states "The following supplementary information is required for all solid waste processing and disposal facilities". This permit application is not for a solid waste processing or disposal facility. Nevertheless, we address these sections as requested in Attachment 8 of these responses.

ENGINEERING REVIEW

Non-Conformity

1105 Part I ⁷ Is the waste unused commercial calcium carbonate, or is it spent calcium carbonate which is in contact with or contaminated with solid waste in the wastewater treatment system? Contaminated spent calcium carbonate is considered solid waste (see definition of solid waste and industrial solid waste).

Response

Part ⁷ I - types of waste to be applied at the facility.

In the Part I application, Ciba explained that the material was "Solid Calcium Carbonate" and that Ciba does not agree that this material should be classified as a waste under the definition of solid waste as explained below.

In response to the question above, the calcium carbonate is not commercial calcium carbonate, nor is it spent calcium carbonate which is in contact with or contaminated with solid waste in the wastewater treatment system. It is not contaminated spent calcium carbonate. The calcium carbonate is a precipitated solid from neutralization of several

waste streams. These waste streams become neutralized and lose their hazardous characteristics in a Clean Water Act permitted wastewater treatment neutralization process.

A review of 40 CFR 260.10, 40 CFR 261.2, LAC 33:VII.115 (definition of solid waste), LAC 33:V.4901-4907, and LAC 33:V.4139 shows that RECAL II meets the EPA and LDEQ definitions of solid waste, but that Ciba believes that the definition of solid waste should exclude this material because: (1) not all precipitates or solids from water or wastewater treatment processes should automatically be considered wastes; (2) "used in a manner constituting disposal" should not mean any material applied to land. It is Ciba's belief that some precipitates from neutralization and water treatment processes are "by-products" which are valuable resources and these should not automatically be regulated wastes. (3) Materials which contain no toxics, not inherently offensive, and used as commercial product substitutes should not be solid wastes. Also, agricultural enhancing materials such as odorless fertilizers and non-toxic soil improving materials should not be included in the class of wastes described as "used in a manner constituting disposal" if they do not increase the toxic metals content of the soil. Ciba advocates exempting such materials in the definition of solid waste.

Ciba concedes that under the present definition of solid waste that LDEQ has regulating authority over RECAL II and that a Beneficial Use Authorization is applicable.

Non-Conformity

1107.F.1 Please clarify whether or not RECAL II is spent calcium carbonate generated from treatment of a waste; is it in contact with or contaminated with seven (7) waste streams? Identify the key contaminants and the concentration limits of each contaminant in the RECAL II.

Response

RECAL II is not spent calcium carbonate. It is active calcium carbonate which is why it serves as an agricultural calcium carbonate liming agent. Typical agricultural calcium carbonate is called agricultural limestone. RECAL II is

precipitated from neutralization treatment of seven characteristically hazardous waste streams. The precipitated solids are not contaminated with the seven waste streams because those waste streams no longer exist after neutralization. The major contaminant is entrained water from the dewatering operation. The water filtrate is discharged to the Mississippi River under an NPDES, Clean Water Act permit. The typical characterization is shown in the table in Appendix VI of the application. A comparison to typical agricultural limestone is shown below:

	<u>Typical RECAL II</u>	<u>Typical AG Limestone</u>
Water	<62%	12.4%
Calcium Carbonate	25-40%	83.6%
Calcium Sulfate	2-25%	0.13%
Calcium Phosphate	0-10%	1.0%
Calcium Hydroxide	0-6%	<0.1%
Calcium Chloride	0-3%	0.04%
Iron Hydroxide	0-2%	0.2%

The table in Appendix VI of the application lists the typical chemical characteristics and contaminant possibilities with the maximum concentration of each. None of the total 1,400 loads analyzed have failed the specifications listed in Appendix VI of the application.

A comparison of metals concentrations of RECAL II to metals concentrations of fifty-five local agricultural sites, to which RECAL has been applied, shows that the average metal concentrations of each of the eleven metals is below the maximum metals concentration of the soils prior to application of RECAL II. This comparison is provided in the table in Attachment 9. Furthermore, Table V in Appendix IX of the application shows that for the metals which have application rate limits annual applications for 227-125,000 years would be necessary to exceed the metals loading limits.

GEOLOGICAL REVIEW

Non-Conformity

1109.E. Address this section or submit an exemption request in accordance with LAC.33:VII.307.

Facility Subsurface Hydrology. The following standard applies to subsurface hydrology for beneficial-use facilities: The facilities shall be located in a hydrologic section where the historic high water table is at a minimum of a three-foot depth below the zone of incorporation, or the water table at the facility shall be controlled to a minimum of a three-foot depth below this zone.

Response

Ciba has applied for an exemption from 1109.E standard. A copy of the exemption request will be provided in the final application submittal after the application deficiencies are corrected to the satisfaction of LDEQ. The exemption request follows the provisions of LAC 33:VII.307.B.1-3. A copy of the proof of publication of the exemption request according to LAC 33:VII.307.C.1 is provided in Attachment 10 of these responses.

ATTACHMENT 1



State of Louisiana
Department of Environmental Quality



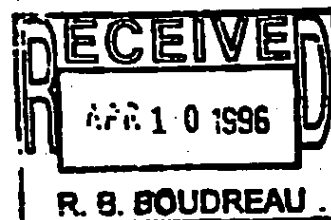
ALL "MIKE" FOSTER, JR.
GOVERNOR

April 8, 1996

J. DALE GIVENS
SECRETARY

CERTIFIED MAIL 2 441 775 463
RETURN RECEIPT REQUESTED

Mr. Richard B. Boudreau
Senior Staff Environmental Engineer
Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, Louisiana 70776



RE: Ciba-Geigy Corporation
St. Gabriel Plant
Beneficial-Use Permit Application
GD-047-0224/PA #513
Iberville Parish

Dear Mr. Boudreau:

The Solid Waste Division has completed its review of your Permit Application for the above-referenced facility dated February 6, 1996. The following comments are presented regarding items not considered in conformity with the applicable sections of the Louisiana Solid Waste Regulations.

TECHNICAL REVIEW:

- 1105.I Provide letter (LRRDA) referenced in this section.
- 1105.N Provide the third party documentation as required in LAC 33:VII.1103.B.
- 1107 The regulatory requirements in 1107 (Part II) shall be included in the permit application with the responses immediately following.
- 1107.E.1 Incorporate the standards in 1109.F.1.a-h into the response to this section.
- 523.A-E (Part III) Address these sections.

ENGINEERING REVIEW:

- Part I.L Is the waste excess, unused commercial calcium carbonate or is it the spent calcium carbonate which is in contact with or

OFFICE OF SOLID AND HAZARDOUS WASTE SOLID WASTE DIVISION P O BOX 82178 BATON ROUGE LOUISIANA 70884-2178

TELEPHONE (504) 765-0249 FAX (504) 765-0299

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contaminated with solid waste in the wastewater treatment system? Contaminated spent calcium carbonate is considered solid waste (see definition of solid waste and industrial solid waste).

If Recal II is solid waste, please correct the sentence "Ciba does not agree that this material should be classified as a waste under the definition of solid waste". If it is not solid waste, then it is not regulated under the Solid Waste regulations.

1107.F.1

Please clarify whether or not Recal II is spent calcium carbonate generated from the treatment of waste; is it in contact with or contaminated with seven (7) waste streams? Identify the key contaminants and concentration limits of each contaminant in the Recal II.

GEOLOGICAL REVIEW:

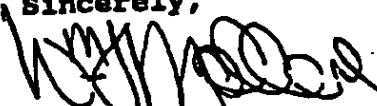
1109.E

Address this section or submit an exemption request in accordance with LAC 33:VII.307.

Your responses to these deficiencies shall be sent to this office within (30) days of receipt of this letter. Please refer to the sections and denoted regulations when responding to the comments. Additionally, four (4) copies of your response including appendices, shall be provided.

If you have any questions concerning this matter, please contact Ms. Yolunda Righteous (Technical Review), Mr. Hoa Van Nguyen (Engineering Review), or Mr. Robert Frischhertz (Geological Review) of the Solid Waste Division at (504) 765-0249.

Sincerely,


William J. Mollere
Administrator
Solid Waste Division

WJM:YR:jd

ATTACHMENT 2



Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, LA 70778

Telephone 504 642 1100

Certified Mail No. Z 061 658 786

March 27, 1996

Mr. William Mollere, Administrator
State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
P.O. Box 82178
Baton Rouge, Louisiana 70884-2178

RE: Submittal of Louisiana Resource Recovery and Development Authority (LRRDA) Letter of Conformity with the Statewide Plan for Recal II Beneficial-Use Permit Application

Dear Mr. Mollere:

Attached is the letter of conformity to the statewide plan from the Louisiana Resource Recovery and Development Authority stating that the Recal II Beneficial Use operation conforms with the applicable statewide plan. This letter is required for the Part I Beneficial Use permit application and is being submitted as an addendum to the permit application which Ciba-Geigy-St Gabriel Plant submitted to the LDEQ-SWD Permit Section on February 2, 1996. Please insert this letter into Part I, Appendix II of the application.

Thank you for your assistance in this matter. We would appreciate expeditious handling of the permit, because farmers are continuing to press for this material. If you or anyone on your staff has any questions regarding the permit application, please contact me at 504-642-1257.

Sincerely,

Richard B. Bondreau
Senior Staff Environmental Engineer

Attachment



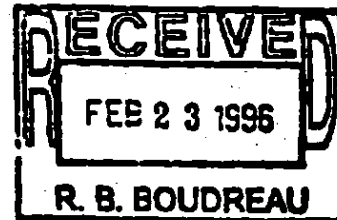
State of Louisiana
Department of Environmental Quality



M.J. "MIKE" FOSTER, JR.
GOVERNOR

J. DALE GIVENS
SECRETARY

February 21, 1996



Mr. Richard B. Boudreau
Senior Staff Environmental Engineer
Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, Louisiana 70776

Re: Request for Letter of Conformity
Ciba-Geigy Corporation
RECAL II
Iberville Parish

Dear Mr. Boudreau:

The above-referenced facility does not conflict with any plans or proposed facilities of the Louisiana Resource Recovery and Development Authority (LRRDA), as of this date.

If you have any questions concerning this matter, please contact me at (318) 898-4206.

Sincerely,

R. Brady Broussard
R. Brady Broussard
Chairman, LRRDA

RBB:sb

OFFICE OF SOLID AND HAZARDOUS WASTE SOLID WASTE DIVISION

P.O. BOX 82178

BATON ROUGE, LOUISIANA 70884-2178

TELEPHONE (504) 765-0249

FAX (504) 765-0223

AN EQUAL OPPORTUNITY EMPLOYER



Louisiana
Keep it Beautiful

ATTACHMENT 3

LOUISIANA DEPARTMENT OF AGRICULTURE & FORESTRY

Office of Agricultural & Environmental Sciences

Agricultural Chemistry Division

P. O. Box 25060, University Station

Baton Rouge, Louisiana

70804-5060

(504) 342-5812

LF

MATTHEW J. KEPPINGER I
ASSISTANT COMMISSIONER

BOB ODOM
COMMISSIONER

March 28, 1996

Ciba-Geigy Corporation
P. O. Box 11
St. Gabriel, LA 70776-0011

Attention: Kim Pagel

Dear Ms. Pagel:

Your application for registration of Agricultural Liming Materials has been reviewed and accepted for 1996.

Your company has been assigned Manufacturer Number 07. Please use this number on all correspondence with this office.

Enclosed are a copy of the cities and parishes, the parish codes and the list of codes for the different types of lime for your use. Please use the proper parish code and the code for the type of lime on your quarterly tonnage report.

If we may be of any further assistance, please contact me at the above address or telephone number.

Sincerely,

Norma M. Mack

Norma M. Mack
Administrative Secretary

NM

enclosures

APPLICATION FOR REGISTRATION OF AGRICULTURAL LIMING MATERIALS

LOUISIANA DEPARTMENT OF AGRICULTURE & FORESTRY
BOB ODOM, COMMISSIONER

Send all correspondence to the following address:
Louisiana Department of Agriculture and Forestry
Agricultural Chemistry Division
P. O. Box 91081
Baton Rouge, Louisiana 70821-9081

<u>CIBA-GEIGY CORP</u>	<u>504</u> <u>642-1100</u>
Name of Company	Telephone Number
<u>PO BOX 11</u>	<u>3905 HWY 75</u>
Mailing Address	Location
<u>ST GABRIEL LA 70776-0011</u>	<u>TAX ID# 131834433</u>
City and State Zip Code	Social Security # or Federal Tax I. D. #

Kinds of Agricultural Liming Materials Sold: Check appropriate space(s).

Agricultural Liming Materials	<input checked="" type="checkbox"/> <u>Recalc II</u>	Ground Shells	_____
Aragonite	_____	Hydrated Lime	_____
Burnt Lime	_____	Marl	_____
Calcite Liming Material	_____	Bulk	_____
Cement Kiln Dust	_____	Suspension Materials	_____
Chalk	_____	Ground Limestone	_____
Dolomitic Liming Material (Solid)	_____	Dolomitic Liming Material (Liquid)	_____
Other	_____		

I/We agree to submit quarterly reports to the Commissioner. The quarter shall end on the last day of March, June, September, and December as provided in R. S. 3:1367.

I/We agree to pay an annual registration fee of \$15.00 on or before March 31st.

I/We further agree to keep records necessary to accurately indicate the tonnage of agricultural liming materials and pay the fee of 10 cents per ton on each ton of material delivered in this state. The fee imposed by this Subsection shall be paid quarterly at the same time the tonnage report is filed.

I/We agree to permit the Commissioner or his duly authorized representative to examine these records at any time to verify the statement of tonnage.

KIM PAGEL
Company Representative (Please Print)
Kim Pagel
Signature (Sign above in ink.)
ENGINEER
Title

FEBRUARY 14, 1996
Date

FOR OFFICE USE ONLY	
Approved By	<u>Hershel F. Morris, Jr.</u>
Date	<u>March 28, 1996</u>
Quarantor Number	<u>07</u>

SUBMIT IN DUPLICATE: ONE COPY WILL BE RETURNED AS CERTIFICATION OF REGISTRATION.
AAE-37-02 PL 2/80

List Of Lime Products

Description

AGRICULTURAL LIMING MATERIALS

- 2 ARAGONITE
- 3 BURNT LIME
- 4 CALCITE LIMING MATERIAL
- 5 CEMENT KILN DUST
- 6 CHALK
- 7 DOLOMITIC LIMING MATERIALS (SOLID)
- 8 GROUND SHELLS
- 9 HYDRATED LIME
- 10 MARL
- 11 GRANULAR
- 12 PROCESS WASTE LIME
- 13 BULK
- 14 SUSPENSION MATERIALS
- GROUND LIMESTONE
- 16 DOLOMITIC LIMING MATERIAL(LIQ)
- 17 PELLETIZED LIME
- 18 LAWN LIME
- 19 RECAL I
- 20 RECAL II
- 21 Boiler Wood Ash
- 22 OTHER

ATTACHMENT 4



Paul H. Templet, Ph.D.
SECRETARY

OFFICE OF WATER RESOURCES
July 26, 1988

Maureen O'Neill
ASSISTANT SECRETARY

Mr. Richard B. Boudreau
CIBA-GEIGY Corporation
P.O. Box 11
St. Gabriel, LA 70776

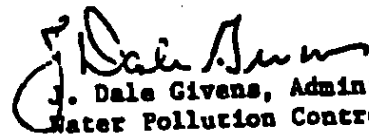
Dear Mr. Boudreau:

Subject: AWT Calcium Carbonate Solids

Based on the information submitted on May 31, June 20 and June 29, 1988, the Water Pollution Control Division has no objection to the use of your Acid Waste Treatment Calcium Carbonate Solids as a soil amendment agent for local farmers. We understand that the Solid Waste Division is granting authorization for a one year trial period. Please submit a summary of the monitoring at the end of the one year period.

If you have any questions, please do not hesitate to contact me or Gary Aydall.

Sincerely,


J. Dale Givens, Administrator
Water Pollution Control Division

JDG:GRA:dps
cc: John Koury
Jack Ferguson
Marion Fannaly
Capital Regional Office

ATTACHMENT 5



Louisiana State University
Agricultural Center
Louisiana Cooperative Extension Service

East Baton Rouge Parish Office
805 St. Louis Street
Baton Rouge, LA 70802
(504) 389-3058

December 4, 1995

William J. Mollere
Dept. of Environmental Quality
Administrator Solid Waste
P.O. Box 82178
Baton Rouge, LA 70884-2178

Dear Mr. Mollere:

Since the inception of this unique waste-lime program ten years ago, I have had the privilege of working as the Extension Service coordinator with Ciba Corporation waste minimization program for Recal I and II projects. The products of this program included a calcium carbonate lime slurry disseminated to farmers for adjusting low acidic soils. Farmers in eight (8) parishes have saved over one million dollars in liming cost on some twenty-five thousand acres of farmland being limed with Recal II. This figure does not include the cost savings resulting from more efficient fertilizer utilization.

A greenhouse study completed this month was conducted to evaluate the by-product, Recal II, as a liming material on acid soils used for crop production (corn and soybeans). The study was conducted by Dr. Donald L. Robinson, Professor Agronomy Dept. LSU, on November 16, 1995.

It is requested that you please review this enclosed data as requested by Ciba Corporation and the LSU Ag Center, for an increase use in Calcium Chloride CaCl_2 and other elements to Recal II.

The Louisiana Cooperative Extension Service approves four proposed changes having no detrimental effect on crop land used for pasture (forages) and row crop production for the following:

1. Calcium Carbonate (CaCO_3) change from approximately 75% to approximately 65% on a dry weight basis.
2. Solids to be changed from approximately 45% to approximately 38%.
3. Calcium Chloride (CaCl_2) changed from approximately 1% to approximately 3%.
4. Sodium Thiosulfate add to specification to approximately 150 ppm or less.

These changes will help provide a needed increase of Recal II being disseminated

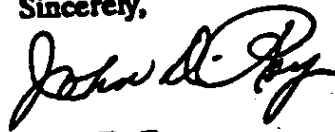
to farmers in this eight parish area.

Please review the enclosed findings and feel free to contact Dr. Donald Robinson, John Bruce, Ciba Corporation, or John D. Roy - County Agent East Baton Rouge Parish.

The challenge to farmers and agricultural scientists in the next decade will be to continue to provide a food supply to the American people that will be both affordable, safe, nutritious and can be produced on an environmentally sound and sustainable bases.

Thanks for assisting us in this worthwhile project which has placed the Louisiana Cooperative Extension Service - LSU Agricultural Center and Ciba Corporation at the forefront in contributing to the solution of significant community and agricultural problems in waste minimization.

Sincerely,



John D. Roy
County Agent
Coordinator
East Baton Rouge Parish

JDR/kg
Enclosures

cc: Dr. Larry Rogers, Vice Chancellor of Administration
Dr. Jack Bagent, Director and Vice Chancellor - LA Cooperative Extension Service
Terril D. Faul, Assoc. District Agent - District 2
John Bruce, Purchasing Group - Ciba Corp.
Richard Boudreaux, Environmental Chemist, Safety Health and Ecology - Ciba
Hoa Van Nguyen - DEQ Solid Waste
Dr. Bill Cochran, LSU Solid Waste
Jeanette Tucker, Parish Chairman - EBR Coop. Extension Service

December 6, 1990

Thomas Clausi
Plant Manager
Ciba-Geigy Corporation
St. Gabriel, Louisiana 70776

Dear Mr. Clausi:

For the past five years, I have had the privilege of working with Recal I and II projects which are recycled calcium carbonate industrial by-products.

As an off campus educational arm of the land grant university, the LSU Cooperative Extension has always had responsibilities toward agriculture and natural resources.

Ninety percent of the soils in East Baton Rouge Parish have pH values of 4.0 - 5.5. These low pH values result in reduced yields and inefficient utilization of fertilizers. With the increased cost of production and lower prices for farm commodities, it is difficult for farmers to invest in lime which cost approximately \$30.00 a ton applied. These acid soils rob our farmers of their profits. Agronomists agree that judicious liming programs are needed to control soil acidity which result in substantial increase in yield.

Recal I and II recycled by-products have shown substantial increase in farm profitability (indicated in Table V); which is a summary of yield data conducted over a two year period.

Community resource development is another area of my educational responsibility. Maintaining the quality of our environment is our primary goal. Solid waste management has become the biggest problem for local governments. The East Baton Rouge Extension Issues Task Force Advisory Committee, which is made up of a cross section of local citizens has set solving waste management problems as our Number 1 priority.

The East Baton Rouge Cooperative Extension Service, a part of the LSU Agricultural Center, has a close relationship with the State Department of Agriculture and various state and federal regulatory agencies. Together, we have at our disposal a wide range of expertise and testing facilities.

When Ciba-Geigy plant managers Norman Downey (retired) and you Tom, suggested that your by-product might be practical for use on farms, I solicited help from the LSU Agricultural Experiment Station, from local farmers and other people for laboratory on field testing of the materials. The effectiveness and safety of this product was a concern and that it could be used within the guidelines of the state Department of Environmental Quality and the federal Environmental Protection Agency.

The testing was planned and supervised by an advisory task force made up of chemical representatives, experiment station scientists, extension specialist, farm leaders and myself. I then enlisted the help of some key innovative farm leaders that have successfully used approved, cultural practices recommended by the LSU Cooperative Extension Service. I discussed all of the information I had with farm demonstrators, including experiment station test results and some of the problems they might encounter.

Ten farmers participated in Result Demonstration plots using Recal II lime. Because of test data and soil analysis, various rates and methods of application of slurry lime was applied. Special field days were planned and all farmers in the area had an opportunity to tour the demonstration test plots after completion.

In the past two years, ten East Baton Rouge Parish farmers have saved \$75,000.00 in lime costs on 1,000 acres of land treated with Recal II, and this does not include the cost savings from more efficient use of fertilizers.

Ciba-Geigy Corporation has shipped more than 5 million pounds of Recal II at no cost to farmers. This generous gesture by your corporation has provided a tremendous savings to the farmers in our community. The farmers in East Baton Rouge Parish would like to extend their thanks and appreciation to you for your corporation.

I believe this innovative project has placed the LSU Extension Service and Ciba-Geigy at the forefront in contributing to the solution of significant community and agricultural problems of the present time. There are other industries in this area that produce similar materials and these results indicate that if the scope of this practice can be broadened to cover a large area, we could increase farm profitability and save additional millions of dollars in disposal landfill costs.

Emphasis will be placed on recycling in the 90's. Ciba-Geigy Corporation is reaching into the future with the Recal II program. Thanks for going that extra mile !!!

Sincerely,



John D. Roy
County Agent
East Baton Rouge Parish

JDR:lro

**CIBA-GEIGY/NACAA
Agricultural Crop Production
Recognition Program**

Utilization of Lime Waste To Aid
Depressed Farmers *Recal II*

**John D. Roy
County Extension Service Agent
805 St. Louis Street
Baton Rouge, Louisiana 70802
504-389-3056**

March, 1988

CIBA-GEIGY/NACAA
Agricultural Crop Production
Recognition Program

John D. Roy
County Extension Service Agent
East Baton Rouge Parish, Louisiana

Utilization of Lime Waste To Aid
Depressed Farmers

Situation and Problem:

East Baton Rouge Parish (county) is a major industrial parish which has significant agricultural acreage. It is surrounded by parishes which are primarily agricultural. Soybeans and commercial vegetables have been among the principal crops grown in the parish, along with feed grains and forestry products. East Baton Rouge farmers are facing another year of market prices at or below break-even levels for most major crop commodities. These conditions have made demands on the County Agent to develop alternate cropping systems and perform farm business analyses. Farmers and agribusiness leaders in the parish have consulted the Louisiana Cooperative Extension Service at Louisiana State University and the Parish Extension Office seeking means to improve the farm situation. One major means of assisting farmers to increase yields and therefore to increase profits has been developed and shows great potential.

There are many soils in East Baton Rouge and surrounding parishes with pH values of 4.0 to 5.5. These low values result in reduced yields and inefficient utilization of fertilizers. The increased cost of production inputs, coupled with lower prices for farm commodities, makes it difficult for farmers to invest in lime which cost some \$30 per ton. Agronomists agree that acid soils are robbing farmers of profits, and that judicious liming programs are needed to control soil acidity. Success in this area could substantially increase yields.

East Baton Rouge Parish has a large petro-chemical industrial complex. There are more than 50 chemical plants located within a 20-mile radius. The County Agent in the parish has a good working relationship with chemical plant representatives who often provide demonstration materials and financial support for grower meetings and field demonstrations.

The Ciba-Geigy Corporation plant at St. Gabriel, in adjacent Iberville Parish, is one of the largest herbicide plants in the world. Officials of the plant contacted the County Agent about three years ago with a unique concept to help depressed farmers in East Baton Rouge Parish. Ciba-Geigy had a liming by-product which it was disposing of as a waste in a sanitary landfill at a cost of approximately 5 cents per pound. The plant offered these materials to farmers at no cost for either the product or for transportation, if the materials could meet EPA standards.

The County Agent investigated the situation, and found this to be an opportunity which held great potential for making a significant contribution to the well-being of the farmers.

Educational Objectives

The primary educational goals of the program have been to make all farmers aware of the availability of the liming by-product as a soil fertility amendment, and to instruct them in the proper usage of the material. The primary objective was the increase the crop yields of the farmers in the parish.

Program Activities

Before initiating the program, the County Agent held a number of meetings with farmer groups and with individual farmers in the parish. The following items were discussed:

1. Farmers were alerted to the problems associated with usage of the by-product, one of which is that it is sticky when wet.
2. Testing of the material was undertaken, and farmers were given the results of technological findings, including a spectrographic analysis indicating that the liming by-products contained no inordinate rates of heavy metals, and met all environmental standards.
3. Producers were informed of safety factors involved in applying the liming amendment, techniques for applying it, and application rates as recommended by the LSU Soil Testing Laboratory.
4. Result Demonstration plots were established in designated areas throughout the parish.
5. The County Agent worked with the LSU Department of Agronomy in conducting greenhouse tests to determine specific data.
6. Field tours were conducted to present the results of field plot tests to farmers.
7. An advisory task force was organized, composed of chemical company representatives, Agricultural Experiment Station and Cooperative Extension Service agronomists, farm leaders and the County Agent.

Educational Methods

The seriousness of the agricultural economic situation, coupled with the cost-free availability of the liming amendment, made it imperative that fast action be taken by the County Agent and that response from farmers be immediate. Ciba-Geigy representatives proposed to the County Agent that the liming materials would be made available for research and demonstration

purposes. The proposal was accepted, and the material was analyzed by both a private laboratory and by Agricultural Experiment Station scientists. The results of the analyses are as follows:

Lime--by-product No. 1

Chemical properties of the by-products liming grit material

	<u>Percent</u>
Calcium carbonate equivalent (CCE)	106.3
Calcium (Ca)	42.7
Magnesium (Mg)	0.98
Moisture	6.5
Heavy metals were less than the maximum allowable amounts set by EPA	

The County Agent consulted with agronomists with the Agricultural Experiment Station and the Cooperative Extension Service about the value of using the liming amendment for soil fertility improvement, and the application rate, based on field data collected. Field data showed the following:

Effects of by-product liming material on soil pH at three soybean sites

<u>Location</u>	<u>Initial soil pH</u>	<u>Pounds/acre lime material</u>	<u>pH following liming¹</u>
Site 1	4.8	800	6.4
Site 2	5.2	500	6.7
Site 3	5.4	1000	6.8

¹One year after applying by-product lime

In addition to the immediate effect of the liming by-product on pH, the overall calcium content was increased, ranging from 700 to 1,000 parts per million.

During the spring of 1986, Ciba-Geigy made an offer of another liming by-product, slurry, for use as a pH adjuster in soil. The County Agent, working closely with the LSU Department of Agronomy and the chemical company, followed the same procedures, requesting analyses of the slurry. The following data were collected:

Line--by-product No. 2

Production Availability:	60-80,000 lbs. per day
Solids:	40% (35%-40%)
EPA Tox. test:	Passed, further testing to be done
Classification:	Non-hazardous waste
Neutralization as 40% solid:	100 lbs. of slurry neutralizes 20 lbs. hydrochloric acid, or 26 lbs. sulfuric acid

**Specifications
Slurry Lime**

	<u>Range</u>	<u>Average</u>
CaCO ₃	50-75%	65%
Ca(OH) ₂	.5-7.5%	4%
CaSO ₄	5-20%	11%
CaHPO ₄	1-2%	2%
Fe(OH) ₃	5-15%	6%
*CaClH ₂	1-10%	6%
*NaCl	1-5%	2%
Inerts	1-10%	4%
pH	9-10%	10%

***High Soluble Salt Content**

The test data clearly indicated that calcium chloride (CaCl₂) and sodium chloride (NaCl) were present in excessive amounts that could cause salt damage to sensitive crops.

Preliminary investigations were conducted on slurry under greenhouse conditions by Agricultural Experiment Station and Cooperative Extension Service agronomists and the County Agent. These indicated that the material can be used on acid soils for the production of soybeans.

The soil used in the investigations was Gallion silt, pH 5.2 loam from the Ouachita River alluvial area of Louisiana. The soybean cultivar was Centennial. The slurry rates on a dry basis were 0, 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, and 4.0 tons per acre. The material was applied to the soil surface, and mixed into the top two centimeters prior to planting soybeans.

Generally, there was an increase in dry matter production when 0 to 2 tons was applied per acre. Further applications of 2.5 to 4.0 tons per acre resulted in significant yield reductions. The data indicate that the material can be used up to and including the 2-ton rate. (See attached data of treatments in Table 1.)

Table 1. The influence of different rates of Ciba-Geigy slurry on dry matter production of Centennial soybeans grown on two soils in the greenhouse, 1986.

Slurry Treatments ¹	Dry Matter Yield	
	Soil Type	
	Gallion	Olivier
Grams/pot	Grams/pot	
0.0	0.483 b	1.900 ab
0.5	0.414 b	1.840 ab
1.0	0.659 b	1.948 ab
* 1.5	1.197 a	2.003 ab
* 2.0	1.362 a	1.700 b
2.5	0.825 a	1.842 ab
3.0	0.760 b	2.080 ab
3.5	0.771 b	2.108 ab
4.0	0.457 b	2.250 a
C.V., %	32.1	16.5

Yield values followed by the same letter are not significantly different at P 0.05, by Duncan's MRT.

¹Grams material/pot = tons/acre since each pot contained 1000 g of soil

A similar project involving slurry from another chemical plant in the Baton Rouge area was conducted by scientists working independently of the Ciba-Geigy project. This research, done at the Burden Research Plantation in Baton Rouge, confirmed the findings of the Ciba-Geigy analyses. It was found that this slurry was equal to or better than standard agricultural lime in increasing the soil pH. Normal rates of slurry lime mixed with an acid Olivier soil from Baton Rouge were effective in increasing yield of soybean plants in the field. It was effective in increasing soil pH, soil calcium levels and soybean yields.

The County Agent, working with a Cooperative Extension Service forage specialist, conducted two 6-acre forage legume demonstrations at a cattleman's ranch in the parish. Slurry at a rate of 1,000 pounds was applied to six 1-acre plots, along with six clover, ryegrass and fescue varieties. Evaluation of the plots was begun in the fall of 1986 and 1987.

The final demonstration plot was located on the grounds of the Ciba-Geigy plant, using 30 acres of commercial sweet corn varieties. One ton per acre of slurry was applied to half (15) of the acreage, while the other half was non-treated. Tissue analysis was run on the plants, showing no excessive sodium or chlorine buildup. The non-treated sweet corn varietal test plots yielded 1900 dozen ears per acre, while the plots treated with slurry yielded 3500 dozen ears per acre.

As County Agent, it is my responsibility to plan a program of work based on the data available. The initial steps are as follows, all of which have been accomplished:

- Step 1: Secure innovative key farm leaders who were successful farmers and adopted practices recommended by the Louisiana Cooperative Extension Service.
- Step 2: Discuss all available data with farm leaders, and establish demonstration plots to be used in the experiment.
- Step 3: Meet with chemical plant representatives and farm cooperators, outlining the site, methods of distribution and application.
- Step 4: Meet with farm cooperators to discuss the results of demonstration procedures.
- Step 5: Draft maps listing farmers' locations and tons of product the producer would receive.
- Step 6: Initiate plans for collecting data and evaluating results. Sampled lime to be tested for quality control. Collected soil samples at all farm sites.

In addition, the County Agent presented a slide program on "Waste Product Utilization" at the 1987 Annual Conference of the Louisiana Cooperative Extension Service, emphasizing "Team Work: The Key in Addressing Louisiana Priorities."

Evaluation

Since the inception of the waste-lime program was initiated 2 1/2 years ago, 20 farmers in East Baton Rouge Parish have saved a total of approximately \$200,000 in lime costs alone, liming more than 15,000 acres of farmland. This does not include the cost-savings resulting from more efficient fertilizer utilization. Ciba-Geigy Corporation at St. Gabriel has shipped more than 19 million pounds of this lime by-product to farmers at no cost. It is estimated that this plant will save more than \$500,000 in disposal costs annually.

Utilization of the slurry could not only save East Baton Rouge farmers a significant amount of money, but could also result in considerable savings for Ciba-Geigy. Indications are that this slurry carbonate would be much more effective in its chemical makeup and quality than the grit carbonate material.

Exploring such possibilities should benefit the farm industry far beyond the boundaries of East Baton Rouge Parish. Several other areas in which chemical plants are located are looking into utilization of similar waste products. In addition to helping the farmer, it results in improving the environment, and conserving land which is used in disposal of this usable waste product. The idea of a cost-free waste by-product being used by farmers in depressed areas is paramount in its total success, and could result in savings of millions of dollars.

APPENDIX 3

SUCCESS STORY FY 90

Parish/Area East Baton Rouge

Page 1 of 4

Name John D. Roy

1862 X 1890

If story does not fit on this form, use additional blank sheets. Identify and number them appropriately.

Attach copies of newspaper clippings, articles, brochures, reports, other supporting materials.

TITLE

Utilization of Lime Waste To Aid Depressed Farmers

TEXT (describe successful program, innovation, activity, team effort)

East Baton Rouge Parish (county) is a major industrial parish located in Southeast Louisiana. It also has significant agricultural acreage. The parish is surrounded by other parishes which are primarily agricultural. Soybeans, corn, wheat and commercial vegetables forage and beef cattle are among the principal crops grown in East Baton Rouge Parish. Farmers and others involved in agribusiness in the parish have looked to the Louisiana Cooperative Extension Service at Louisiana State University and the Parish Extension Office for methods to improve the farm situation. One major means of assisting farmers to increase yields, and therefore to increase profits, has been developed and shows considerable potential.

Many of the soils in East Baton Rouge Parish and surrounding parishes have pH values of 4.0-5.5. These low values result in reduced yields and inefficient utilization of fertilizers. With the increased cost of production and lower prices for farm commodities, it is difficult for farmers to invest in lime, which costs approximately \$30 a ton, to raise the pH. These acid soils rob farmers of profits. Agronomists agree that judicious liming programs are needed to control soil acidity, and that substantial increases in yield could result, if a means would be found to raise pH values at a low cost.

East Baton Rouge Parish has a major petrochemical industrial complex, with more than 50 chemical plants located within a 20-mile radius. The County Agent has worked to develop a good relationship with chemical plant representatives who often provide demonstration materials and financial support for producer meetings and field demonstrations.

The Ciba-Geigy Corporation has a plant at St. Gabriel, La in Iberville Parish, adjacent to East Baton Rouge Parish. It is one of the largest herbicide plants in the world. Officials of Ciba-Geigy contacted the County Agent four years ago with an offer involving a unique concept to assist farmers. The plant had a

liming by-product which it had to dispose of as a waste in a sanitary landfill at a cost of about 5 cents a pound. Ciba-Geigy offered these materials to farmers free of cost for both the product and for transportation, if the materials could meet EPA standards.

The county Agent investigated the offer thoroughly, and found it to be an opportunity with great potential for making a significant contribution to agriculture. For the past four years, he has worked diligently to implement the program.

Educational Objectives:

The primary educational goals of the program have been to make farmers aware of the availability of the liming by-product as a soil fertility amendment, and to instruct them in the proper usage of the material. The primary objective has been to increase the crop and forage yields.

Program Activities:

Before the program was initiated, the County Agent held a number of meetings with farmer groups and individual farmers in the parish. The following items were discussed:

1. Farmers were made aware of the problems associated with usage of the materials, one of which is that it is sticky when wet.
2. Scientific testing of the materials were done, and farmers were informed of the results of technological findings which included a spectrographic analysis indicating that the liming by-product contained no inordinate amounts of heavy metals, and met all environmental standards.
3. Farmers were advised of safety factors involved in application of the liming amendment. They were informed of techniques and rates of application as recommended by the Louisiana State University Soil Testing Laboratory.
4. Twenty result demonstration plots were established in designated areas.
5. The Louisiana State University Department of Agronomy worked with the County Agent in conducting greenhouse tests to determine specific data.
6. The County Agent conducted field tours to present the results of field plot tests to farmers.
7. An Issues Advisory task force was organized, composed of chemical plant representatives, Agricultural Experiment Station and Cooperative Extension Service agronomists, farm leaders and the County Agent.

8. Frequent contacts were made with governmental representatives, DEQ Solid Waste to secure approval of the usage of the materials.

Educational Methods:

The seriousness of the agricultural economic situation, coupled with the cost-free availability of the liming amendment, made it imperative that the County Agent act with due immediacy, and that the farmers respond likewise. Ciba-Geigy representatives proposed to the County Agent that the liming materials be made available for research and demonstration purposes.

A similar project involving slurry from another chemical company in the East Baton rouge Parish area was conducted by scientists working independently of the Ciba-Geigy project. This research, done at the Louisiana Agricultural Experiment Station's Burden Research Plantation in Baton Rouge, confirmed the findings of the Ciba-Geigy analyses. It was found that the slurry was equal to, or better than, standard agricultural lime in increasing the soil pH. Normal rates of slurry lime mixed with an acid Olivier soil from East Baton Rouge Parish were effective in increasing yields of soybeans in the field. It increased the pH, calcium in the soil and soybean yields.

The county Agent, working with a forage specialist with the Cooperative Extension Service, conducted two 6 acre forage legume demonstrations at a cattleman's ranch in East Baton Rouge Parish. Recall I at a rate of 1,000 pounds was applied to six 1-acre plots on which were planted clover, ryegrass and fescue varieties. Evaluation of the plots was begun in the fall of 1986 and in 1987.

Another demonstration plot was established on the grounds of the Ciba-Geigy plant where varieties of commercial sweet corn were planted on 30 acres. One ton of Recall II per-acre was applied to 15 acres, and the other 15 acres, while the Recall II-treated plots yielded 3,500 ears. Tissue analyses were run on the plants. There was no excessive sodium or chlorine buildup.

Accomplishments

As County Agent, it is my responsibility to plan a program of work based on the data available. The initial steps, all of which have been accomplished, include:

- Step 1: Secure innovative key farm leaders who are successful farmers and have adopted practices recommended by the Louisiana Cooperative Extensive Service.
- Step 2: Discuss all available information with farm leaders, and establish demonstration plots to be used in the experiment.

Step 3: Meet with chemical company representatives and farm cooperators, outlining the site, and methods and rates of distribution.

Step 4: Meet with farm cooperators to discuss the results of demonstration procedures.

Step 5: Draft maps listing farm locations and tons of materials each farmer would receive.

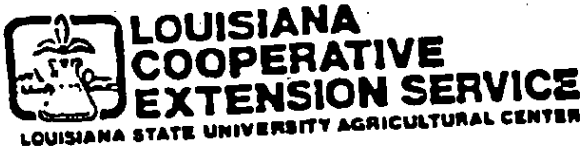
Step 6: Initiate plans for collecting data and evaluating results. Sample lime to be tested for quality control, and collect soil samples at each farm site.

Evaluation:

Since the inception of the waste-lime program was initiated 2 1/2 years ago, twenty farmers in East Baton Rouge Parish have saved a total of approximately 300,000 in lime costs alone, liming more than 15,000 acres of farmland. This does not include the cost-saving resulting from more efficient fertilizer utilization. Ciba-Geigy Corporation at St. Gabriel has shipped more than 30 million pounds of this lime by-product to farmers at no cost. It is estimated that this plant will save more than \$500,000 in disposal costs annually.

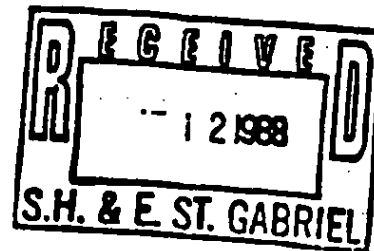
Utilization of the slurry could not only save East Baton Rouge farmers a significant amount of money, but could also result in considerable savings for Ciba Geigy. Indications are that this slurry carbonate would be much more effective in its chemical makeup and quality than the grit carbonate material.

Exploring such possibilities should benefit the farm industry far beyond the boundaries of East Baton Rouge Parish. Several other area parishes in which chemical plants are located are looking into utilization of similar waste product. The idea of a cost-free waste by-product being used by farmers in depressed areas is paramount in its total success, and could result in savings of millions of dollars.



21 Napoleon B. Burpee road
Baton Rouge, LA 70803
504-388-1281

October 7, 1988



Mr. Hershel F. Morris, Jr.
Feed and Fertilizer Lab
H.D. Wilson Bldg. - LSU
Baton Rouge, LA 70803

Dear Mr. Morris:

I have worked with the use of Ciba-Geigy's by-product liming materials since 1985. These material can be used when applied at the recommended rate per acre to correct low soil pH. thereby improving the soil for crop production.

The information supplied by Ciba-Geigy in the application for registration of these products as Recal I and Recal II is in order and I recommend that these products be registered ok as a liming materials.

Sincerely,

Olen Curtis

Olen D. Curtis
Specialist (Agronomy)

/da

ATTACHMENT 6

EVALUATION OF RECAL II , A BY-PRODUCT LIME
FOR CIBA-GEIGY CORPORATION

BY A.G.CALDWELL, Ph.D., SOIL CHEMIST.

A.G. Caldwell

12-6-90

**Evaluation of Recal II, a by-product lime from CIBA-GEIGY CORPORATION,
St. Gabriel, Louisiana.**

By A.G. Caldwell, Ph.D., Soil Chemist.

Properties of Recal II

Recal II, a by-product lime, produced by Ciba-Geigy Corporation has CaCO_3 equivalence (Neutralizing Power) of over 75% on a dry basis. It contains other calcium compounds which add calcium equivalent of up to 20%. These enhance its value in plant nutrition but would not raise the soil pH. Like most by-product limes, Recal II has finer particles than most commercial limestones. The finer sizes result in more rapid neutralization of soil acidity and raising of soil pH. The Recal II has an adequate neutralizing power to be an effective liming material for Louisiana farmers. It represents a valuable asset because Louisiana has no limestone quarries and must import large quantities of limestone for liming acid soils from Texas, Missouri and Alabama at a high cost in freight.

Heavy metals in Recal II.

The content of heavy metals in Recal II is very low compared to the lifetime loading limits when one considers that the probable maximum rate of application would be only 1000 pounds per acre per year, although the amount added at any one time might be as high as 6000 pounds per acre. After such an application one would not expect to reapply lime for five or six years.

Lime needs of Louisiana soils.

Many upland soils in Louisiana need lime. This is especially true in East Baton Rouge and the Florida Parishes of Louisiana. They have pH's that are frequently in the low 5's and many in the 4's. Such soils are too acid for efficient growth of many agronomic crops such as corn, soybeans and pasture grasses. It is especially unfavorable for the growth of clover and other legumes which improve our pastures and reduce our dependence on synthetic nitrogen because they fix atmospheric nitrogen.

Most agronomic crops perform best if the pH is 5.7 or above. To assure this we generally lime to pH 6.5 and allow the pH to return to pH 5.7 before liming again. For alfalfa we need a higher pH, 6.8, and we lime to 7.5.

Lime applied to soils does not move except in the very sandy soils. Therefore we prefer to mix the lime into the soil by tillage after application. The benefits of lime extend for several years. In one experiment at Perkins Road Farm the benefits of one application of lime were still measurable in corn and cotton yields 13 years after liming. In a study at Burden Research Plantation soybeans still averaged 8 bushels more in the third year after they had been limed. Much of this response is from enhanced nitrogen fixation. The limed soybeans were larger, greener and higher protein than the unlimed beans.

Field studies with Recal II.

The extensive studies of Recal II (recycled calcium carbonate) by Mr. John Roy of the La. Cooperative Extension Service and by the Department of Agronomy have established the merits and the non-hazardous nature of this by-product lime.

The Recal II has adequate neutralizing power to be an effective liming material for Louisiana farmers. The studies show that the material adjusted the pH quickly. At ten (10) sites in East Baton Rouge Parish the pH was raised from an average of 5.5 before liming to an average of 6.8 eight to ten months later. This is an excellent result and is what the Extension Service hopes to achieve with tier lime recommendations.

Plant responses to Recal II.

AS is typical of experiments conducted in farmers fields, a number of the tests were not harvested and the response measured. Those that were measured gave the usual sort of yield response. Unlike fertilizers which give most of their response the first year, lime is expected to continue to give responses for several years after one application. The average response on the sites measured were +14.4% for corn, +5.8% for pasture (bahiagrass) and +5.2% for soybeans. The beans would have responded more on a more acid site (the unlimed pH was 5.7).

Heavy metals in the crops.

The tissue of the treated crops were analyzed for arsenic, barium, cadmium, copper, lead, mercury, nickel, selenium, silver and zinc. Although there is currently no recognized standard for these elements in crops, there was little increase in these elements in the produce from the treated plots compared to the untreated.

Heavy metals in soils.

Analysis of soil from treated and untreated plots reveal little if any additional arsenic, barium, cadmium, nickel, selenium, silver or zinc in the treated compared to the untreated plots. In the case of lead there was an average increase of 8 pounds of lead/acre in the treated plots. This compares quite favorably to the La.D.E.Q.'s lifetime loading limit of 1000 pounds/acre. Based on the average lead content in the Recal II there should have been only 0.01 pounds added per acre by a three ton application. There could be some problem in the analysis of the soils for lead. the worst scenario results in 1/125 of the loading limit, the best and more likely in a 1/100,000 of the loading limit.

Overall.

Recal II appears to be an effective liming material that contains very low concentrations of heavy metals. It effectively raised soil pH to desirable levels and increased yields in the manner expected with agricultural liming materials. It did not significantly raise the level of heavy metals in the soils or in the crops growing on the treated soils. At the rates of application that would be recommended by the La. Cooperative Extension Service Recal II will be effective and will not constitute a hazard in terms of the very small amounts of heavy metals and the modest amounts of calcium and sodium salts it contains.

Based on these observations and the advantage to Louisiana farmers and consumers I recommend the approval of this product to be applied at rates recommended by the La. Cooperative extension Service (Soil Testing Laboratory). The net effect will be a considerable reduction of material going to landfill and a great economic benefit to Louisiana farmers at little or no risk to the environment.



Louisiana State University
Agricultural Center
Louisiana Agricultural Experiment Station

Department of Agronomy
104 Madison B. Sarge Hall
Baton Rouge, LA 70803-2110
(504) 388-2110
Fax: (504) 388-1403
E-mail: rps00@lsuvm ancc.lsu.edu

November 27, 1995

Mr. John Bruce
CIBA Corporation
P.O. Box 450
St. Gabriel, LA 70776

Dear John:

Attached is my report of the greenhouse research, evaluating Recal II as a liming material for acid soils. This report is the same one I previously sent to you by FAX.

It is a pleasure to help in evaluating this by-product material and, hopefully, in allowing it to be utilized as a valuable resource.

Feel free to contact me anytime if I can be of further service.

Sincerely,

Donald L. Robinson
Professor

DLR:cr

Attachments

Recal II Evaluation for Corn and Soybean Production

**Donald L. Robinson, Professor
Agronomy Department, LSU
November 16, 1995**

A greenhouse study was conducted to evaluate a by-product, Recal II, as a liming material on acid soils used for crop production in Louisiana. The Recal II contained 83.4% CaCO_3 , 0.52% CaCl_2 , and 0.06% NaCl . It was applied to a Stough fine sandy loam soil of pH 4.3 at the rate of 3 tons of material per acre in pots containing 2 kg of soil. The Recal II and other needed plant nutrients were mixed with the soil. Increasing levels of CaCl_2 were added to the Recal II to give final concentrations of 0.5, 1.0, 2.0, 3.0, 4.0, 5.0 and 10.0% CaCl_2 in the Recal II. Corn and soybeans were grown separately in greenhouse pots receiving 3 tons per acre of Recal II containing the various percentages of CaCl_2 . All treatments were repeated with and without the addition of 100 p.p.m. sodium thiosulfate in to the Recal II. Two additional treatments, no lime and pure CaCO_3 equal to the CaCO_3 in Recal II, were also included. The 16 treatments applied to each crop were replicated four times in a completely randomized design in the greenhouse.

Lime and fertilizers were mixed with the soil and the soil was watered to field capacity. Corn and soybean seeds were planted 7 days later. Both crops were harvested after 6 weeks, dried at 70°C, and weighed.

Statistical analysis of the yield data in Table 1 indicated the following results:

1. Recal II was an effective liming material on Stough fine sandy loam as indicated by:

- a) slightly but not significantly higher corn yields with the addition of either Recal II or pure CaCO_3 .
 - b) soybean yields that were increased over 4-fold by the addition of Recal II or pure CaCO_3 .
2. Calcium chloride in concentrations upto 10% of the Recal II did not influence corn or soybean yields where Recal II was applied at the rate of 3 tons per acre.
 3. Sodium thiosulfate added to the Recal II at 100 p.p.m. had no effect on corn yield at any CaCl_2 level. Soybean yields were slightly but significantly lower with sodium thiosulfate at two of the seven CaCl_2 levels. This latter result is inexplicable and likely has no agronomic basis, but is probably a random result due to experimental error. Both ammonium thiosulfate and potassium thiosulfate are widely used as liquid fertilizers and are applied to the soil or directly applied to plant foliage. There is no agronomic reason to expect the minute concentrations (100 p.p.m.) of sodium thiosulfate to adversely affect plant growth when applied to the soil.

Soil test results showed that both Recal II and pure CaCO_3 increased soil pH from 4.3 to 5.2 at the rate applied. The rise in pH lowered exchangeable aluminum from 90 p.p.m. (a toxic level) to less than 20 p.p.m. (non-toxic level). These results further show that Recal II is an effective liming material.

Table 1. Yields of corn and soybeans grown on an acid soil in the greenhouse as influenced by rate of Recal II, calcium chloride, and sodium thiosulfate.

Materials applied, g/pot				Corn Yield		Soybean Yield	
Recal II	CaCl ₂	% CaCl ₂ in Recal		without Na T.S.	With Na T.S.	Without Na T.S.	With Na T.S. ¹
grams/pot							
1.	0	0	—	11.69	—	1.63	—
2.	6 ²	0.03	0.5	12.76	14.13	6.88	6.41
3.	6	0.06	1.0	13.83	12.84	7.45	5.72**
4.	6	0.12	2.0	12.38	13.50	7.05	6.14**
5.	6	0.18	3.0	13.45	14.05	6.23	6.34
6.	6	0.24	4.0	12.78	13.29	6.68	6.04
7.	6	0.30	5.0	13.40	13.28	6.64	6.56
8.	6	0.60	10.0	12.93	13.27	6.16	6.16
9.	CaCO ₃	(pure)	—	13.27	—	6.32	—

Least Significant Difference = N.S. for corn and 0.82 for soybean.

¹ Sodium thiosulfate (Na T.S.) was added to the Recal II at the concentration of 100 parts per million.

² Six grams per 2 kg of soil is equal to 3 tons per acre.

**Yields due to sodium thiosulfate are significantly different at the 95% probability level.

ATTACHMENT 7

ATTACHMENT 7

**COPY OF PART II SECTION 1107 E.1
WITH 1109.FA-H STANDARDS
INCORPORATED INTO RESPONSES**

1107.E. Facility Administrative Procedures. Standards governing facility administrative procedures are contained in LAC 33:VII.1109. The following information on administrative procedures is required for all facilities.

1. Recordkeeping system, types of records kept, and use of records by management to control options;

1109.F.1.a. Reports

- i. The permit holder shall submit annual reports to the administrative authority indicating quantity and types of solid waste beneficially used, (expressed in wet-weight tons and dry-weight tons per year), during the reporting period. All calculations used to determine the amounts of solid waste received for processing or disposal during the annual reporting period shall be submitted to the administrative authority. A form for this purpose must be obtained from the administrative authority. The following standards apply to reports;
- ii. The reporting period shall be from July 1 through June 30, commencing July 1, 1992 and terminating upon closure of the facility in accordance with the permit.

Response

Ciba will submit annual reports using the LDEQ designated form showing the wet/dry weight in tons of RECAL II per year for the reporting period distributed to each site.

- 1109.F.1** iii. Annual reports shall be submitted to the administrative authority by August 1 of each year.

Response

Ciba will submit annual reports to the administrative authority by August 1 of each year.

- 1109.F.1.** iv. The annual report is to be provided for each individual permitted facility on a separate annual reporting form.

Response

Ciba will report the quantity of RECAL II received by each farmer's site on a separate reporting form or as directed by LDEQ.

- 1109.F.1 v. Facilities which receive industrial solid waste shall utilize, in their annual report, the seven digit industrial waste number that has been assigned by the Solid Waste Division to the industrial solid waste generator.

Response

Since Ciba will distribute to multiple farmers' locations, Ciba requests a single beneficial-use permit for multiple beneficial-use locations as provided in LAC 1103.C. (see below) except that Ciba is not "disposing" at these sites. This use of RECAL II is not disposal.

Ciba is allowing the farmers to use a useful, safe material because this is the most environmentally sound disposition for the material.

- 1103.C. The administrative authority may issue a single beneficial-use permit for multiple beneficial-use locations provided that the permit application includes required information for each location, each location meets the standards provided in this Chapter, and the same solid waste streams (from a single generation site) is disposed of at all locations. The multiple locations will be considered as one facility and each location will be a unit of the facility.

Response

Ciba requests a single beneficial-use permit for multiple farmers' sites to be selected by the Louisiana Cooperative Extension Service. RECAL II is not disposed at any of the locations, but is used as a liming agent.

- 1109.F.1.a. vi. Reports shall be submitted as provided in Subsection F.1.b.vi-ix of this section.

Response

There are no such sections in the LDEQ-Solid Waste Regulations.

1109.F.1.b. Recordkeeping

- 1109.F.1.b. i. The permit holder shall maintain all records specified in the application as necessary for the effective management of the facility and for preparing the required reports. These records shall be

maintained for the life of the facility and shall be kept on file for at least three years after closure.

Response

Ciba will maintain all records as stipulated in this permit for the life of the permit. Records shall be kept for at least three years after RECAL II production is discontinued.

The following is a list of records to be kept at the Ciba, St. Gabriel Plant:

- 1) site locations where RECAL II is distributed.
- 2) distribution agreement with each farmer. (see example in Appendix IV of application)
- 3) farmers acknowledgment of handling instructions. (see example in Appendix IV of application)
- 4) LSU Agronomy Lab report from Louisiana Cooperative Extension Service showing before application soils test data, soil type, farmers name and location, crops to be grown, and recommended lime application rate. (see example in Appendix IV of application)
- 5) a copy of the topographical map depicting the farm site.
- 6) all quality control test data obtained on each load and certificate of analysis. (see example in Appendix V of application)
- 7) total weight of all loads delivered and data shipped.
- 8) actual loading rate of RECAL II at each site (see Appendix X of application)

1109.F.1.b ii. Records kept by the permit holder shall include (but not be limited to)
(a) daily log.

Response

Daily logs are kept by Ciba Environmental Operations on the unit where RECAL II is produced. Daily logs are kept by the lab technicians performing the shipment and batch testing of the RECAL II. Daily shipping logs are kept by the Environmental Operations department.

1109.F.1.b. ii.b) quality-assurance/quality control records.

Response

Quality-assurance/quality control records are kept by the Ciba Analytical Applications Group and the Ciba Environmental Regulatory Affairs Group.

1109.F.1.b. ii.c) inspections by the permit holder or operator.

Response

Production site inspections are performed M-F by the Environmental Operations day supervisor. These site inspections are not specifically recorded.

Application site inspections are performed at least once for each site by the Ciba buyer and the Ciba Environmental Operations day supervisor when the farmer and the Ciba buyer signs the handling instructions agreement and the trucking company is given delivery instructions at the site. The application site inspections are not specifically recorded other than the signatures and dates on the handling instructions. See example copy of handling instructions acknowledgment form in Appendix IV of the application.

1109.F.1.b. ii.d) monitoring, testing, or analytical data

Response

Any other recordkeeping including other types of testing and/or analytical data will be kept in the Ciba, Environmental Regulatory Affairs Group (ERAG) files.

1109.F.1.b.ii.e) Any other applicable or required data deemed necessary by the administrative authority.

Response

All other records are kept in the Ciba, ERAG files by the member of the ERAG group responsible for waste minimization documentation.

1109.F.1.b. ii.f) Copy of the semi-annual soil waste mixtures tests and analyses of the results, with conclusions, submitted semi-annually to the Solid Waste Division, or more frequently if deemed necessary by the administrative authority.

Response

The Louisiana Cooperative Extension Service will provide the before application soil sampling and testing data to Ciba. The soil classification, cation exchange capacity, organic matter in the soil, soil pH, sodium, calcium, magnesium, potassium, phosphorus, and the recommended liming agent treatment rate have been provided by the LSU Agronomy Lab Report of the testing performed on the farmer's soil from samples taken by the Louisiana Cooperative Extension Service. An example of such a report is provided in Appendix IV of the application.

Since 1987, Ciba has performed extensive evaluations, testing, greenhouse studies, monitoring on-site field tests, farm field tests. The use of the material has been coordinated by the Louisiana Cooperative Extension Service, the Louisiana Department of Agriculture, and authorized by LDEQ-SWD on forty-nine farm sites in the parishes of East Baton Rouge, West Baton Rouge, Iberville Parish, Ascension, East Feliciana, Pointe Coupee, and Livingston. Since 1989, Ciba has distributed over 20,000 tons of RECAL II under LDEQ authorization to area farmers.

The safety and effectiveness of RECAL II as an agricultural liming agent has been well demonstrated and documented to LDEQ in reports issued to LDEQ-Solid Waste Division on May 31, 1988, November 30, 1990, October 21, 1993, October 28, 1993, October 28, 1994 and December 8, 1995.

Based on all of the reports listed above, the demonstrated safe, effective use over the last ten years, and the recommendations of the Louisiana Cooperative Extension Service, testing of the soil after application of RECAL II for any parameter other than the normal agronomy testing typically performed by a farmer after application of agricultural limestone, is not necessary.

- 1109.F.1.b. ii.g) Test parameters shall consist of cation-exchange capacity, soil pH, total nitrogen, phosphorus, organic matter, salts (intrinsic to the waste), cumulative metals, and any others deemed necessary on a site and waste specific basis.

Response

The cation-exchange-capacity, soil pH, total nitrogen, phosphorus and organic matter are parameters applicable to soil testing before application of a liming agent to determine the need and dosage of a liming agent. These tests are not applicable to soil testing after application of a liming agent if the liming agent is known to be effective. Since the Louisiana Cooperative Extension Service and Ciba Corporation have extensive data on 43 sites through July of 1995 (see referenced reports in above section), RECAL II has been demonstrated to be safe and more effective than agricultural limestone (ground).

As shown in each of the RECAL II reports submitted to LDEQ-Solid Waste Division since 1988, there is no longer any need to test either the farmers soil before or after application of RECAL II for Cd, Ni, Zn, Pb, or Cu or any heavy metals. The very large data base of Cd, Ni, Zn, Pb, and Cu analyses on 102 shipments of RECAL II has resulted in a very accurate determination of these metals in each load and the metal loading rate without any further analyses. The concentration of these metals in each load is well known using this data base. Using the total quantity of RECAL II delivered to each site and the total acreage at the site treated by the farmer, Ciba has determined very accurately the loading rate of each of these metals to each site to which RECAL II has been applied. Ciba has reported these loading rates in each of the annual reports issued to LDEQ on RECAL II since 1990.

There is no need to analyze the farmers' soil before or after application of RECAL II for the metals listed above or any heavy metals. Since 1989, RECAL II has been distributed to 43 farmers' sites (no repeat locations) under LDEQ and Louisiana Department of Agriculture authorization and Louisiana Cooperative Extension Service coordination. A summary of the before application metals data in soils and the RECAL II metals concentrations are shown in Attachment 9. For each metal the maximum metal concentration in the soils is greater than the average RECAL II metals concentration.

Each of the reports since 1988 shows that, even if RECAL II were applied every year for hundreds of thousands of years, the LDEQ-SWD metals loading limits would not be exceeded. (See copy of Tables IV and V from the most recently submitted RECAL II annual report included in Appendix IX of the application which lists the actual RECAL II loading rate and the metal of concern loading rate

for five sites compared to the lifetime limit.) In addition, Table V in Appendix IX of the permit application shows the hundred or thousands of years of yearly applications necessary to exceed the lifetime loading rate limit. Further, discussions with the EBR Parish Cooperative Extension Service County agent confirms that typical liming frequency in this area with agricultural lime is no more frequent than every 3 years. With RECAL II, liming will be necessary only every 4-5 years.

Since it is truly impossible to exceed the LDEQ metals loading limits, and extensive data has been accumulated to demonstrate this fact, metals analysis of the RECAL II, metals analysis of the soil before application, and metals analysis of the soil after application are not necessary.

- 1109.F.1.b. ii.h) Annual reports of the analysis of all tests results on the soils; land-use, and crop information, calculated amounts of waste applied per acre shall be submitted.

Response

Annual reports will be submitted similar to those issued to LDEQ-SWD since 1990 including all of the information listed in the response to LAC 33:V.1109.F.1.b.i Metals analyses of the soil before application and metals analyses of the RECAL II is no longer necessary. An extensive data base exists which (1) allows accurate determination of metal concentrations in each load without any additional RECAL II metals analyses and (2) allows an accurate determination of metals loading rates for the LDEQ-SWD limited metals (Pb, Cu, Cd, Ni and Zn) based on RECAL II loading rates. Actual RECAL II application rates will also be reported in the annual reports.

ATTACHMENT 8

PART III

SUPPLEMENTARY INFORMATION

FOR

CIBA-GEIGY CORPORATION

ST. GABRIEL PLANT

BENEFICIAL USE

PERMIT APPLICATION

FOR RECAL II

LAC 33:VII.523 A.-E.

LAC 33.523 PART III ADDITIONAL SUPPLEMENTARY INFORMATION

The following supplementary information is required for all solid waste processing and disposal facilities. All responses and exhibits must be identified in the following sequence to facilitate the evaluation:

- 33:523.A.** A discussion demonstrating that the potential and real adverse environmental effects of the facility have been avoided to the maximum extent possible;

Response

This requirement is not applicable to RECAL II because this is supplementary information required for solid waste processing and disposal facilities. RECAL II use by farmers is not solid waste processing or disposal. The use of RECAL II by farmers as a substitute agricultural limestone is a well recognized safe and effective liming agent practice which has been registered with the Louisiana Department of Agriculture and Forestry since October 11, 1988. Reports on analytical studies, agronomy studies, green-house studies, field studies, crop metal uptake studies, crop yields, metal dosage rates and thoroughly monitored use at over forty-nine (49) area farm sites through April, 1996 in the parishes of East Baton Rouge, West Baton Rouge, Iberville, Ascension, East Feliciana, Pointe Coupe, and Livingston have been submitted to LDEQ-Solid Waste Division on May 31, 1988; November 30, 1990; October 21, 1993; October 28, 1993; October 26, 1993; December 8, 1995; and in this permit application, originally submitted on February 2, 1996.

Ciba-Geigy has distributed 1147 loads of RECAL II to forty-nine (49) area farmers' sites under LDEQ-SWD authorization issued on August 31, 1988 and another issued on March 15, 1991. The distribution has been coordinated by the Louisiana Cooperative Extension Service with approvals from the Louisiana Department of Agriculture and letters of no objection from the LDEQ-Water Resources Division.

The information and data submitted to LDEQ since 1988 on the RECAL II program during the authorization process has been used by the LDEQ as prototype information to develop the LDEQ-Solid Waste Regulations on Beneficial-Use Permit applications.

In conclusion, not only has all the data collected on RECAL II supported the demonstration that RECAL II has no adverse environmental impact as an agricultural liming agent, but there have

been no reports of adverse environmental impact incidents in the eight years the material has been in use as a liming agent.

33.523.B. A cost-benefit analysis demonstrating that the social and economic benefits of the facility outweigh the environmental-impact costs.

Response

As demonstrated in 33.523.A., there are no adverse environmental impact costs in the beneficial use of RECAL II. The benefits of using RECAL II as a liming agent to local farmers are as follows:

- 1) Since 1988, 20,000 tons of high quality, usable calcium carbonate was not sent to landfill resulting in more effective use of local landfills for true wastes.
- 2) Since 1988, forty-nine (49) farmers have saved \$560,000 in liming agent costs.
- 3) Green-house studies, farmers, and the Louisiana Cooperative Extension Service have supported the benefits of RECAL II use demonstrating that crop production is generally enhanced from +3 to +30% by the use of RECAL II.
- 4) Disposal costs of about \$3MM have been redirected to distribution of RECAL II under the conditions imposed by the conditional authorization. The community and not a disposal firm have benefited from distribution costs. Distribution costs have almost equaled the disposal cost savings.

33.523.C. A discussion and description of possible alternative projects which would offer more protection to the environment without curtailing the non-environmental benefits.

Response

There are no possible alternative projects which would offer more protection to the environment and benefit the farmers simultaneously. There are no economic alternatives to producing RECAL II. Ciba is continually improving its source reduction activities by improving the market and internal use for 10% Hydrochloric Acid by-product so that lesser quantities of commercial lime are needed for neutralization and less calcium carbonate is produced. Nevertheless, elimination of the calcium carbonate production is not a foreseeable alternative at this time.

33.523.D.

A discussion of the possible alternative facilities which would offer more protection to the environment without unduly curtailing non-environmental benefits.

Response

This is not applicable to RECAL II because the permit application is not for a facility. It is for the use of RECAL II as a liming agent.

33.523.E.

A discussion and description of the mitigating measure which would offer more protection to the environment than the facility, as proposed, without unduly curtailing non-environmental benefits.

Response

This application is not for a beneficial use facility so there are no mitigating measures which would offer more protection to the environment than the facility (applied for), as proposed, without unduly curtailing non-environmental benefits.

There are no mitigating measures which would offer more protection to the environment in the use of RECAL II as a liming agent because there is no adverse environmental impact. After eight years of distribution under special LDEQ authorization, no adverse environmental impacts have been identified. Experience with the production use, and the quality control system employed, warrant no additional mitigating measures.

ATTACHMENT 9

**BACKGROUND SOILS METALS DATA FOR
AGRICULTURAL SOILS
PAST RECAL II SITES
(From 43 Farmers and 55 Sites)
COMPARED TO RECAL II METALS CONCENTRATIONS**

Soils data from Louisiana Department of Agriculture and Forestry
Soils Testing Lab (LSU) through La. Cooperative Extension
Service. Recal II data from Ciba Corporation

	<u>SOIL</u>		<u>RECAL II</u>	
	<u>ppm</u>		<u>ppm</u>	
	<u>Avg</u>	<u>Max</u>	<u>Avg</u>	<u>Max</u>
Arsenic_____	1.99	25.9	11.9	31.0
Barium_____	206.38	657	99.4	290.0
Cadmium_____	0.24	1.28	1.2	4.8
Chromium-(Total)_____	15.09	29.7	19.9	90.0
Copper_____	12.05	77	8.2	62.0
Lead_____	25.43	80	1.4	3.0
Mercury_____	0.18	3.7	<0.10	0.12
Nickel_____	20.98	47	18.6	45.0
Selenium_____	15.39	42	<1	<1
Silver_____	0.28	3	<0.5	<2.0
Zinc_____	43.34	103	100.1	252.0

ATTACHMENT 10

POST SOUTH

STATE OF LOUISIANA

PARISH OF IBERVILLE

BEFORE ME, the undersigned authority, personally came and appeared:

Joyce S. Hebert

who after being duly sworn, deposed and said: That she is the publisher of the POST/SOUTH, a newspaper published weekly in the Parish of Iberville, State of Louisiana. That the advertisement attached heron was published in the POST/SOUTH on the 16th day of May, 1996

Joyce S. Hebert
Joyce S. Hebert

SWORN TO AND SUBSCRIBED BEFORE ME this 21st day of May, 1996

<p>PUBLIC NOTICE</p> <p>Notice is hereby given that Ciba Corporation, St. Gabriel La. Plant, in Iberville Parish, intends to submit to the Louisiana Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid Waste Division, a request for exemption from LAC 33: VII.1109 E for the beneficial reuse of recyclable calcium carbonate (Recal II) as an agricultural soil liming agent for Louisiana farmers.</p> <p>Comments concerning this exemption request may be filed with the Secretary of the Louisiana Department of Environmental Quality at the following address:</p> <p>State of Louisiana Department of Environmental Quality Office of Solid and Hazardous Waste Solid Waste Division Permit Section P.O. Box 82178 Baton Rouge, Louisiana 70884-2178</p>

Mary E. Hebert
Mary E. Hebert
Notary Public

CAPITAL CITY PRESS

Publisher of

THE ADVOCATE

PROOF OF PUBLICATION

PUBLIC NOTICE

Notice is hereby given that Ciba Corporation, St. Gabriel, La. Plant, in Iberville Parish, intends to submit to the Louisiana Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid Waste Division, a request for exemption from LAC 33: VII.1109 E, for the beneficial reuse of recyclable calcium carbonate (Recal II) as an agricultural soil liming agent for Louisiana farmers.

Comments concerning this exemption request may be filed with the Secretary of the Louisiana Department of Environmental Quality at the following address:

State of Louisiana
Department of Environmental Quality
Office of Solid and Hazardous Waste
Solid Waste Division
Permit Section
P.O. Box 82178
Baton Rouge, Louisiana 70884-2178

The hereto attached notice was published THE ADVOCATE, a daily newspaper of general circulation, published in Baton Rouge, Louisiana, and the Official Journal of the State of Louisiana, the City of Baton Rouge and Parish of East Baton Rouge, in the issues of:

MAY 11, 1996

Jack Musselwhite
Advertising Representative

Sworn and subscribed before me by the person whose signature appears above in Baton Rouge, La. on this

11 MAY 1996

day of

[Signature]
Notary Public

My Commission Expires:

Indef.

20350/942759
EXEMPTION REQUEST

Appendix C

Syngenta Annual Beneficial Use/ RECAL II Report For 2005-2006

syngenta

July 31, 2006

Certified Mail: 7005 0390 0003 3356 3849

Mr. Bijan Sharafkhani, Administrator
Office of Environmental Services
Waste Permits Division
PO Box 4313
Baton Rouge, LA 70821-4313

RE: SYNGENTA ANNUAL BENEFICIAL USE / RECAL II REPORT FOR 2005-2006
Permit GD-047-0224/P-0311 Agency Interest # 2367

Dear Mr. Sarafkhani:

Enclosed are three (3) copies of the Syngenta Crop Protection, Inc, (Syngenta) St. Gabriel Plant Annual Beneficial Use Recal II Report for the reporting period of July 1, 2005 through June 30, 2006.

Enclosed also within this report binder is a copy of a completed LDEQ SW-PMS-5 form. Note that the SW-FSD-5 form is not completely applicable to the reporting requirements of our permit. The enclosed bound report is a supplement to form SW-FSD-5. For the benefit of your program support staff we have attempted to complete as much as possible of the SW-FSD-5 form and referenced the bound report on the remainder.

This report includes all of the information required by the Syngenta Beneficial Use Permit and the LDEQ Solid Waste Regulations (LAC 33:VII.1109F.1.a.i) for the use of Recal II (calcium carbonate solids) from the Syngenta plant aqueous waste neutralization unit as a substitute agricultural liming agent. Additionally, this report conforms to the stipulations made in the LDEQ letter of April 27, 2006 and the Syngenta response dated June 5, 2006. Copies of both letters are included in this report as attachments.

Syngenta distributed 10,881,322 lbs. (on an as is basis) of Recal II to four sites belonging to two farmers during the reporting period. On a dry basis, using the average solids content, the total distributed was 5,179,509 lbs. This substitute lime saved these farmers over \$152,000 in agricultural liming costs for this reporting period. Since commencement of the LDEQ approved program in 1989 Recal II has been distributed to 119 different sites in the surrounding parishes saving sixty (60) local farmers over \$2,200,000 in agricultural liming costs and increasing crop production by as much as 11% on the sites that RECAL II was applied based on the initial studies. The permit expires in November 2006 and will not be renewed due to the phasing out of the process that produces the material.

If you should have any questions, please contact me at 225-642-1257.

Sincerely,

Richard B. Boudreau

Richard B. Boudreau
Sen. Staff Env. Eng.

cc: Mr. Darryl Serio-Administrator, LDEQ, Office of Management and Finance,
Financial Services Division w/report
Purgatorio/J. McDonald w/report
M.McMillan/L.Lien w/report
R. Demeulenaere w/report
ERAG w/report

1 054 1 44 4

9/04

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
ANNUAL REPORT FOR BENEFICIAL-USE FACILITIES
 (Please Refer to the Detailed Instructions)

Site Identification Number GD-047-0224 July 1, 2005 thru June 30, 2006

Permit Number P-0311 Agency Interest Number # 2367

Name of Permit Holder Syngenta Crop Protection, Inc.

Name of Facility Syngenta Crop Protection, Inc. - St. Gabriel Plant

Mailing Address P.O. Box 11, St. Gabriel, LA 70776 Parish Iberville

Contact Richard Boudreau Telephone (225) 642-1257

SUMMARY OF SOLID WASTE RECEIVED:

(A) Waste Number	(B) Wet Weight Tons	(C) Dry Weight Tons
13* - RECAL II	RECAL II - 5,440.7	RECAL II - 2,589.8
* See enclosed bound report		
TOTALS:		

TOTALS:

8. (A) Estimate remaining permitted capacity (expressed in wet-weight tons) N/A* - permit expires November 25, 2006.
(B) Estimated life of facility (expressed in months and based on the permitted capacity of the facility).
N/A* permit expires November 25, 2006.

9. **CERTIFICATION:** I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

10. Provide all calculations used to compute quantity (expressed in wet weight tons and dry-weight tons) of solid waste received at the facility.
- $$\text{Dry Weight Tons} = [\text{Wet Weight (Tons)}] \times [\text{Average Solids Decimal Fraction Content}]$$

Signature _____ Date _____

Name and Title Robert W. Slaven, PH.D., Site Manager
Type the name and title of the person signing the form

This form is to be returned to the Financial Services Division at the following address no later than August 1 of each reporting year. Questions regarding the form may be directed to the Financial Services Division at (225) 219-3863.

**Financial Services Division
Attn: SW Reports
Post Office Box 4303
Baton Rouge, LA 70821-4303**

SW-FSD-5

7. SUMMARY OF SOLID WASTE RECEIVED:

9/04

DETAILED INSTRUCTIONS FOR THE ANNUAL REPORT FOR BENEFICIAL USE FACILITIES

The annual report for beneficial-use facilities covers activities for the period beginning July 1st and ending June 30th of each year. This report shall be submitted by August 1st of each year.

1. Identification Number: Indicate the identification number that has been assigned to the site by the Administrative Authority. Also, enter the year in which the report applies.
2. Permit Number: Enter the permit number for the facility in which this report applies. Each individual permitted facility is to be reported on a separate form.
3. Name of Permit Holder: Enter the name in which the permit has been issued.
4. Name of Facility: Enter the name of the facility for which this report applies.
5. Mailing Address: Enter the mailing address for the facility, and the parish location.
6. Contact: Enter the name of the person knowledgeable of the information submitted on the report and his/her telephone number.
7. Summary of solid waste received: Amounts expressed in this report must be done so in wet-weight tons and dry-weight tons/year. No other methods of reporting will be accepted.

(A) Waste Number: Enter the seven-digit waste number assigned by the Administrative Authority or the two-digit number that applies.

01	Residential	08	Underground Storage Tank Corrective
02	Commercial		Corrective Action Waste
03	Trash	09	Agricultural Waste
04	Woodwaste	10	Stable
05	Construction/Demolition Debris	11	Infectious Waste
06	Incinerator Ash	12	Friable Asbestos
07	Domestic Sewage Sludge	13	Other, also specify name

(B) Wet-weight Tons: Enter amounts of waste received by wet-weight tons. Total all wastes received and enter total at the bottom of that column.

(C) Dry-weight Tons: Enter amounts of waste received by dry-weight tons. Total all wastes received and enter total at the bottom of the column.

If additional sheets are required, please put your identification number and the date on each sheet. Also, add up amount reported on all pages and put the total in the TOTAL box on the first page only.

8. Estimate the remaining permitted capacity in wet-weight tons. Estimate the life of the facility in months and based on the permitted capacity of the facility.
9. Certification by Signature: The facility's legally authorized representative for the site operations should sign the form. Enter the date, the name and the title of the person signing this form.
10. Provide all calculations used to compute quantities of wastes.



**Syngenta Crop Protection, Inc.
P.O. Box 11
St. Gabriel, LA 70776**

**2005-2006 Recal II
Beneficial Use Annual Report
GPD-047-0224/P-0311**

August, 2006

Table of Contents

	Page
Introduction	1
Background	2
Discussion of 2005-2006 Data	5
Sites receiving RECAL II	5
Pre-application Soil Test Data	5
After Application Test Data	6
Shipment Quality Control Data	8
LDEQ Letter of Comment On 2003-2004 Annual Report	10
Conclusions	10

Tables I-IV

Attachment 1

Report Correspondence

Syngenta Name Change Correspondence

Syngenta RECAL II Beneficial Use Permit Issued By LDEQ 1996

Annual Report Requirements from Permit

Typical Shipment Certificate of Analysis

Recal II Typical Chemical Characteristics

Annual Comprehensive Testing of Recal II and Supporting Lab Reports

Attachment II

St. Gabriel Finished Goods Coding System

Appendix A

Recal II Program Quality Control Summary July 1, 2005-June30, 2006

Appendix B

Site 115 Data

Site 117 Data

Site 118 Data

Site 119 Data

INTRODUCTION

Syngenta Crop Protection, Inc-St. Gabriel Plant (Syngenta) is pleased to provide the Louisiana Department of Environmental Quality (LDEQ), Waste Permits Division and Office of Financial Services with the Annual Recal II Report for Syngenta Crop Protection, Inc. St.Gabriel facility as required by permit GD-047-0224/P-0311 and the standards governing beneficial use facilities (LAC 33:VII.1109.F.1.a). This document represents the period of July 1, 2005, through June 30, 2006.

This report contains all the information for the above reporting period stipulated in the Permit under Part II, Section 1109.F.1. for annual reports in the November 25, 1996 permit and the LDEQ letter dated April 27, 2006 followed by the Syngenta response dated June 5, 2006. (See attachment 1 for LDEQ letter issuing permit and the section of the permit listing the annual report contents and copy of LDEQ and Syngenta letters). The information in this report includes:

- background information on the Recal II® project,
- application site identification using address and highlighted on topographical map of the area ,
- before-application site testing results and reports performed by the LSU Soils Agronomy Lab for the LA Cooperative Extension Service,
- shipment Quality Control testing data performed by Syngenta on the RECAL II ,
- application rates of Recal II® per acre for each site,
- total amounts of heavy metals applied to each site based on application rate,

average heavy metal concentrations in the RECAL II product determined from all previous years of the program,

- the heavy metals loading rates compared to the LDEQ metals application limits for each site to which the product was applied,

BACKGROUND

On May 31, 1988, representatives of Ciba-Geigy Corporation made a presentation and submitted a report to the Louisiana Department of Environmental Quality on the utilization of the St. Gabriel plant's neutralization by-product calcium carbonate (Recal II®) as a liming pH modifier for agricultural soils. (Note; Ciba-Geigy Corporation merged with Sandoz Corporation and formed Novartis Crop Protection Inc. in 1997. Novartis owned the St. Gabriel Plant until Novartis Crop Protection, Inc. merged with Zeneca Ag Products in January, 2001 and formed Syngenta Crop Protection, Inc. Syngenta Crop Protection owns the St. Gabriel Plant and is the owner of the beneficial use permit.) A temporary permit was granted for the full-scale utilization at local farmers' sites initially selected by the Louisiana Cooperative Extension Service. The St. Gabriel site received the temporary permit on September 7, 1988. The site also subsequently obtained approval for agricultural liming agent use from the Louisiana Department of Agriculture on October 11, 1988.

Shipments under the temporary permit did not begin until February 23, 1989, because of delays in setting up the procedures for the Louisiana Cooperative Extension Service to designate, sample, and

obtain the necessary pre-application test data. This initially permitted distribution period lasted through February 23, 1990, with the requirement that a report be submitted detailing the results of the soil pH and CEC improvement, Recal loading rates, metal loading rates, and crop tissue metal uptake rates for the first ten sites. As the initial temporary permit period elapsed much of the information was not readily available due to the extended period of time necessary for harvesting or delays experienced by farmers in applying the amender. In order to obtain the required data on the first ten sites where application had been made, a permit extension was requested from LDEQ-SWD and subsequently granted, thereby extending the temporary permit through December of 1990.

In compliance with requirements set forth by LDEQ, a report on the first ten sites to receive the Recal II® shipments during the temporary permit was submitted on December 3, 1990. The report showed beneficial liming results with soil pH increases averaging about 20% and CEC increases averaging about 69%. Crop yield improvement averaged about 11%. The metal loading rates for the eleven heavy metals tested were significantly lower than regulatory allowances, and there were no significant differences in metal uptake rates in comparison to control plots. There was a significant financial benefit to the farmers. After an extensive review of the December 3, 1990, Recal II® report and technical presentation to LDEQ on February 20, 1991, the Solid Waste Division determined that Recal II® distribution could be continued through December 31, 1995, with the conditional permit granted on March 15, 1991.

Shipments were resumed on April 15, 1991. Reports covering distribution for 1991-92, 1992-93, 1993-94, 1994-95, 1995-96, 1996-97, 1997-98, 1998-99, 2000-2001, 2001-2002, 2002-2003, 2004-2005, and 2005-2006 were previously issued to LDEQ.

The current final permit was issued for ten years and expires on November 25, 2006. Specific conditions, operational procedures, and specific permit requirements are included in a two inch binder which was submitted to LDEQ on August 23, 1996 as part of the permit application and answers to the permit application deficiencies.

Syngenta Crop Protection, Inc. with headquarters at 410 Swing Rd, Greensboro, N.C. 27409 owns the St. Gabriel facility and the beneficial use permit for Recal II. Under the ownership of Novartis Crop Protection, Inc. the site made notification to LDEQ on January 2, 1997 of the merger activity and name change. The St. Gabriel site submitted a Permit Modification request for the name change on July 14, 1997. LDEQ responded on January 14, 1998 approving the permit modification as a result of the name change (See attachment 1). Syngenta Crop Protection, Inc. (Syngenta) made notification to LDEQ with several letters between September 2000 and January 2001 of the merger activity and Syngenta name change. Syngenta submitted a name change permit modification request on July 13, 2001. A copy of the submittal letter is included in Attachment 1. An LDEQ response has not been received.

The Recal II Beneficial Use Permit, GD-047-0224/P0311 expires on November 25, 2006. Syngenta will discontinue producing and distributing Recal II in the latter part of 2006 prior to expiration of the permit. Syngenta has not applied for a permit renewal.

DISCUSSION OF 2005-2006 DATA

Sites Receiving Recal II

Table I lists each farmer, site number, site location, shipping dates, the site testing requirements, and an "X" showing completion of the specific permit requirement for the period July 1, 2005, through June 30, 2006. Appendix A includes a summary which shows that during this period 10,881,322 lbs. of Recal II® was distributed in 309 shipments to four different sites (sites # 115, 117, 118, and 119).

Pre-application Test Data

Appendix B includes the raw data from the Louisiana Cooperative Extension Service (LSU AG Center Research and Extension) and the farmer for each site. This information includes the distribution agreement, method of handling agreement with the farmer, the topographical map information designating the farmer's actual location, and the preapplication soil test data from the LSU Agronomy Lab. No chain of custody forms are provided because the farmers obtain the samples and submit them to the LSU Agronomy Lab according to instructions by the Louisiana Cooperative Extension Service (LCES) Parish Agents and the longstanding LSU Agronomy Lab procedures in support of the LCES.

Table II gives the required pre-application site test results for pH and Cation Exchange Capacity (CEC) for each site during the reporting period determined by the LSU Agronomy Lab. Copies of the LSU AG Center Agronomy Lab Reports for each site are included in Appendix B. The soil pH and CEC values obtained on the representative samples provided by the farmers to the lab establish the pH

and CEC level of the soil to which RECAL II will be applied. The soil CEC also defines the LDEQ metal loading limit in Lbs/acre for a lifetime (defined as a 50 year period by LDEQ staff) for the regulated metals to any one site as depicted in Table IV. The effectiveness of the Recal II® already has been demonstrated for the first ten sites in the December, 1990, report and for the remaining sites by its demand.

After Application Test Data

Additionally, it was the conclusion in the December, 1990 report that after-application metals data of the soil and metal loading rates determined from metals analysis of the Recal applied to the initial ten sites showed very low and insignificant increases in regulated metals content of the soil. Annual reports include the heavy metal loading for each site and continue to demonstrate that LDEQ heavy metal loading rate limits cannot be exceeded by application of Recal II and are not a concern.

The LDEQ Beneficial Use permit for Recal II® requires reporting of the five specific heavy metal (Pb, Zn, Ni, Cu, and Cd) loading rates to the soil as a result of the Recal II® application. The permit provides for Syngenta Crop Protection, Inc. to use an average heavy metal concentration. The metal loading rates at any one site are determined by multiplying the specific heavy metal average concentration (ppm) in Recal II (from table II) by actual application rate in millions of pounds per acre applied (lb per acre of Recal from table IV sixth column from right divided by 10^6). The actual application rate of the Recal II® is determined for each site using the total weight shipped in pounds divided by the total acres treated.

The average heavy metals concentrations in Recal II for cadmium, nickel, zinc, lead, and copper are listed in Table III. The loading rate for each LDEQ regulated heavy metal for each site is determined by the following calculation:

$$\text{Lbs of metal/acre} = \frac{(\text{Lbs./acre of Recal Applied}) \times (\text{Avg. mg/Kg of metal in Recal})}{1,000,000}$$

The calculated metals loading rates as a result of application of Recal II® for this reporting period are provided in Table IV. Table IV identifies the sites, the total Recal II® applied to each site, the CEC of the soil before application, the LDEQ maximum loading rate for the regulated metals with respect to the CEC range of the soil, the total acres treated, the Recal II® application rate, and the calculated metal loading rate for each regulated metal to each site. It can be noted that the applied amounts are well within the limits as set forth by LDEQ and would require thousands of years of annual application at the applied rate to exceed the application limits. (Typically, liming is not recommended by the LA. Cooperative Extension Service more frequently than every 3-4 years, and the demand for Recal II has been so strong that there have been very few, if any, repeat applications to any one land.)

The site heavy metal loading rates determined for this reporting period compared to the LDEQ metal loading limits in Table IV show that exceeding the metals application limits is not a reasonable concern. For lead, at the highest loading rate of Recal II for this reporting period (site 117), the farmer would have to apply Recal II annually at 5068 lbs/acre for 43,478 years to exceed the lead lifetime (lifetime is defined as 50 years by LDEQ permit staff) loading limit from Recal II application. For zinc, at the highest loading rate of Recal II for this reporting period, the farmer would have to apply Recal II annually at 5068 lbs/acre for 891 years to exceed the zinc loading limit from Recal II

application. For nickel, at the highest loading rate of Recal II for this reporting period, the farmer would have to apply Recal II annually at 5068 lbs/acre for 2381 years to exceed the nickel loading limit from Recal II application. For copper, at the highest loading rate of Recal II for this reporting period, the farmer would have to apply Recal II annually at 5068 lbs/acre for 5208 years to exceed the copper loading limit from Recal II application. For cadmium, at the highest loading rate of Recal II for this reporting period, the farmer would have to apply Recal II annually at 5068 lbs/acre for 1667 years to exceed the cadmium loading limit from Recal II application. The Louisiana Cooperative Extension Service's LSU Agronomy Lab determines the preapplication pH and CEC on the sites eligible to receive the amender and typically recommends the amount of standard agricultural lime loading rate. Syngenta converts the recommended agricultural lime loading rates to equivalent Recal II loading rates as shown in the La. Cooperative Extension Service Lab reports and in the Syngenta Loading rate calculation sheet. (See Appendix B site data).

Shipment Quality Control Data

Provided in the Appendix A is a Quality Control report from the Syngenta Environmental Analytical Group showing results of all quality control testing performed on each load of Recal II® for the reporting period. Presented in the report in Appendix A are the lot numbers for each shipment. The date associated with the lot numbers can be interpreted by use of the explanation in Attachment 2.

A typical Certificate of Analysis (COA) is provided in Attachment 1. The example COA shows the permit required testing for each load of Recal II. Note that the Quality Control report listing each load that is provided in Appendix A may list more than the permit application required testing because Syngenta may analyze additional parameters periodically or on request.

According to the information provided in the permit application, shipments of Recal II have specifications for the release criteria parameters, percent calcium carbonate, percent calcium chloride, and percent solids. Those parameters are listed in Recal II Typical Chemical Characteristics table in Attachment 1 and appropriately footnoted as release criteria specifications. Additionally, the QC Report in Appendix A shows these parameters as specifications. All the remaining parameters listed in the table of Recal II Typical Chemical Characteristics in Attachment 1 include guideline target levels as provided in the permit application. These parameters are not release criteria parameters, and therefore the guideline target levels are not specifications for each load. The information provided in the permit application indicated periodic determination for the typical chemical characteristics. The test data for all Recal II typical chemical characteristics for a shipment sampled on October 25, 2005 is provided in Attachment 1. The shipment release criteria specifications were met and the typical chemical characteristic parameter guidelines for the other parameters were within target levels. All the TCLP data shows passing, as have all previous TCLP analyses since inception of the program. The first page of the Quality Control Report in Appendix A gives a summary of site distribution quantities. The second page of the QC Report gives a summary of the analytical results for all the loads. The remaining pages list the analytical on each shipped load and the last page provides a summary of the off-specification loads. The off-specification loads were either managed in the Syngenta on-site RCRA permitted facility or sent to an LDEQ permitted non-hazardous waste landfarm for use as a soil pH modifier at the landfarm.

In LDEQ letter dated April 27, 2006, LDEQ stipulated that Syngenta assure the chain of custody of all samples and storage in tamper proof locations. Routine RECAL II truck release samples are

brought to the LELAP LDEQ accredited St. Gabriel Environmental laboratory and immediately relinquished to laboratory personnel. These samples are logged into the laboratory sample database and labelled. All times during analyses and sample retention, the samples are managed under Environmental laboratory systems. Long term retains are maintained in an on-site, locked storage facility managed by laboratory personnel.

LDEQ Letter of Comment On 2003-2004 Annual Report

Syngenta received an LDEQ letter on December 9, 2004 with comment on the Syngenta 2003-2004 Annual Report that Syngenta submitted on September 16, 2004. The LDEQ letter indicated unacceptability of the late report and commented on several items in the report. LDEQ required a Syngenta written response. Syngenta responded with a letter to LDEQ dated January 7, 2005. LDEQ responded with a letter dated April 27, 2006 with stipulations for future reports.

Syngenta responded with a letter dated June 5, 2006 information regarding the stipulations and with acknowledgement of the stipulations. Copies of the above referenced correspondences are included in Attachment 1- Report Correspondence

CONCLUSIONS

Recal II® continues to be a benefit to area farmers saving them over \$152,000 during this reporting period. Since commencement of the program, as permitted by LDEQ in February 1989, local farmers have saved over \$2.2 MM at 119 local locations. The data in this report, as in previous reports, continues to support the conclusion that the use of Recal II® as an agricultural liming agent over the last sixteen years is safe, effective, environmentally beneficial, and economical to Syngenta and the local farmers. The Recal II program continues to be a prime example of effective, environmentally friendly, off-site recycling and reuse.

TABLE I

"SUMMARY OF REQUIRED RECAL II SITE TESTING"
(JULY 1, 2005- JUNE 30, 2006; "X" INDICATES COMPLETED)

FARMER	SITE #	SITE	SHIPPING DATES	CEC	pH
Charles Hamilton	115	St. Francisville, LA	8/13/04-9/9/05	X	X
R L. Burton	117	St. Francisville, LA	1/04/05-8/14/05	X	X
Charles Hamilton	118	St. Francisville, LA	9/11/05-3/27/06	X	X
Charles Hamilton	119	St. Francisville, LA	3/28/06-5/19/06	X	X

TABLE II

**PRE-APPLICATION SITE TESTING FOR RECAL II
(JULY 1, 2005 - JUNE 30, 2006)**

SITE NO./OWNER	PH	CEC, meq/100g
115 Charles Hamilton	5.43	8.64
117 R.L. Burton	5.13	9.76
118 Charles Hamilton	5.87	7.73
119 Charles Hamilton	5.46	8.27

TABLE III

**AVERAGE CONCENTRATION OF METALS IN RECAL II TO EACH SITE
(1986-1998 and 2003-2004)***

Pb, ppm	Zn, ppm	Ni, ppm	Cu, ppm	Cd, ppm
4.5	110.7	20.7	9.5	1.2

*Average Concentration of Metals in Recal II to Each Site (Based on Analysis of Loads to Sites 1-10, 15-52, 54-56, except for Pb which is based on an average of 10 loads for 2003 and ten loads from 2004 as reported in previous two annual reports)

TABLE IV

**CALCULATED METAL LOADING RATES
TO EACH SITE AND RECAL II LOADING RATES
(JULY 1, 2005 - JUNE 30, 2006)**

SHIP DATE	SITE NO.	Total Acres	CEC Mcq/10 Og	Lbs Recal Applied	Lbs/Acre ¹					
					Recal II	Pb	Zn	Ni	Cu	Cd
LDEQ MAX LOADING RATE	--	--	<5	--	--	500	250	125	125	5
	--	--	5-15	--	--	1000	500	250	250	10
	--	--	>15	--	--	2000	1000	500	500	20
11/20/03-9/09/05	115	3281	8.64	12,392,926 ²	3777	0.017	0.418	0.078	0.034	0.005
1/04/05-8/14/05	117	500	9.76	2,534,080 ³	5068	0.023	0.561	0.105	0.048	0.006
9/11/05-3/27/06	118	1472	7.73	7,104,660	4827	0.022	0.534	0.100	0.046	0.006
3/28/06-5/19/06	119	816	8.27	2,423,316	2970	0.013	0.329	0.061	0.028	0.004

¹ Based on the total quantity applied in millions of pounds per acre multiplied by the average metals concentration in Recal II from table III.

² Based on 11,479,560 lbs. applied through 6/30/04 and 913,366 lbs. applied this reporting period - metal loading rates are based on total applied.

³ Based on 2,094,100 lbs. applied through 6/30/04 and 439,980 lbs. applied this reporting period - metal loading rates are based on total applied.

Attachment 1

Applicable Report Correspondence

Syngenta Crop Protection, Inc
Post Office Box 11
St. Gabriel, LA 70776

Tel. 225 642 1100

syngenta

Certified Mail : 7005 0390 0003 3356 3740

June 5, 2006

Mr. Lenny Young, Administrator
Water and Wastes Permits Division
Louisiana Department of Environmental Quality
P.O. Box 4314
Baton Rouge, LA 70821-4314

RE: LDEQ Letter of Comment, Dated April 27, 2006 Concerning Syngenta Crop Protection, Inc.-St. Gabriel Plant (Syngenta) Annual Beneficial Use/RECAL II Report 2003-2004
Beneficial Use Permit GD-047-0224/ P-0311

AI Number 2367
Permit Activity Number 19990001

Dear Mr. Young:

This is the Syngenta requested acknowledgement and acceptance of the stipulations Syngenta received on May 8, 2006 in the LDEQ letter dated April 27, 2006 commenting on the Syngenta Annual Beneficial Use/RECAL II Report for 2003-2004. Attached, as the first attachment, is a copy of the LDEQ letter.

Syngenta acknowledges and accepts the listed stipulations and recommendations.

As a response to the last item recommended by LDEQ for a form of "permanent" type of registration for the Syngenta Liming Agents, Syngenta provides herein, as the second attachment, a copy of the 2006 Annual Louisiana Department of Agriculture and Forestry (LDAF) Registration for its liming agents. LDAF requires annual renewal of the registration for all liming agents. Permanent registration is not an option offered by LDAF regulations. Accordingly, Syngenta has been annually registering and obtaining approval from LDAF for its liming agents since the initial LDAF approval of registration as a liming agent in 1988 by Syngenta's legacy company Ciba-Geigy Corporation.

Syngenta's legacy company obtained the initial temporary LDEQ authorization for distribution in 1989 with subsequent temporary authorization issued by LDEQ in 1991 and final permitting in 1996. The LDEQ Beneficial-Reuse Permit for RECAL II expires in November 2006. Syngenta has not submitted a permit renewal application.

Syngenta appreciates the opportunity to respond to the LDEQ comments and welcomes a meeting for any further discussion or questions or please contact Mr. Richard Boudreau at 225-642-1257.

Sincerely,



Murry A. McMillan
Environmental Regulatory Lead

rbb

CC: Ms. Amy Exnicios- LDEQ Office of Environmental Services, Water and
Wastes Permits Division
Mr. Drukell Trahan-Office of Environmental Assessment, Env.
Technology Division



DEPARTMENT OF ENVIRONMENTAL QUALITY

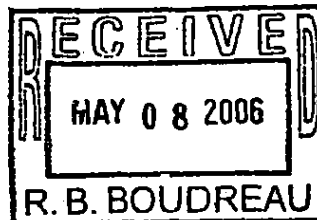
KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

APR 27 2006

CERTIFIED MAIL 70041160000037536153

Mr. Richard Boudreau
Syngenta Crop Protection, Inc.
P.O. Box 11
St. Gabriel, LA 70776



RE: Syngenta Crop Protection, Inc.
Response to the Annual Beneficial Use/ RECAL II Report 2003-2004
AI# 2367/ PER 19990001
Beneficial-Use Permit GD-047-0224/P-0311
Iberville Parish

Dear Mr. Boudreau:

The Water and Waste Permits Division is in receipt of your submittal dated January 7, 2005, regarding the Annual Beneficial Use/ RECAL II report for 2003-2004.

After careful review and consideration of your submittal, the Water and Waste Permits Division accepts the Annual Beneficial Use/ RECAL II Report 2003-2004 under the condition that the following be included in future annual reports issued under P-0311. Failure to abide by these stipulations will require a request for a permit modification or possible enforcement action by the Department. Therefore, Syngenta must:

- Submit all future reports to the Department by August 1 of each reporting year, or notify the Department and request an extension if any report is to be submitted after August 1.
- Analyze and report the pH and Cation Exchange Capacity (CEC) for all candidate preapplication soils scheduled to receive RECAL II.
- Conduct metals analyses of RECAL II samples within the holding time period of six months as specified by EPA SW-846.
- Provide calculations and tables to show that lead and other applicable metal concentrations of the RECAL II being applied yield lifetime metal loading rates that are less than the maximum rates specified in LAC 33:VII.1109.G.3.
- Provide evidence to assure that the chain-of-custody for samples stored prior to analysis includes maintaining the samples in a secure, "tamper-proof" location.

ENVIRONMENTAL SERVICES

: PO BOX 4313, BATON ROUGE, LA 70821-4313

P:225-219-3181 F:225-219-3309

WWW.DEQ.LOUISIANA.GOV

Mr. Richard Boudreau
AI # 2367/ PER19990001
Page 2 of 2

- Outline the crop fields on an aerial photograph where the lime (buffer) by-product is being applied, in order to continue meeting the requirement of LAC 33:VII.1107.A.1.

The following additional information is recommended for Syngenta to be in compliance with the Permit and the Solid Waste Regulations:

- Syngenta must notify the Department when they change the source of their liming agent and must submit an analysis of the liming agent. REASON: The permit application contains an analysis of the liming agent that was utilized by Ciba-Geigy Corporation in 1988. In Syngenta's January 7, 2005 response to comments, the increase in lead levels of the by-product was attributed to a change in the source of their liming agent. Therefore, since the liming agent being utilized by Syngenta is different from the liming agent referenced in the permit application, as part of their QA/QC procedure [LAC 33:VII.1109.F.1.b.ii (b)], a notification to the Department was necessary and an analysis of the liming agent utilized must accompany the notification of change of product.
- Syngenta should attempt to obtain some form of a "permanent" type of registration for Agricultural Liming Materials from the Louisiana Department of Agriculture & Forestry. The letter of approval that was first submitted in the application was only good for one year, 1996.

Please acknowledge your acceptance of these stipulations or submit a permit modification request within thirty days after the receipt of this letter.

Please reference your Agency Interest Number 2367, Facility ID Number GD-047-0224 and Permit Activity Number PER 19990001 on all future correspondence pertaining to this issue. If you have any questions concerning this matter, please contact Amy Exnicios of the Solid and Hazardous Waste Permits Section at (225) 219-3551.

Sincerely,

Lenny Young

Lenny Young
Administrator
Water and Waste Permits Division

ale/dbt

c: Drukell B. Trahan-OEA-EDT

BEST COPY OF THE NEXT 30 PAGES

LOUISIANA DEPARTMENT OF AGRICULTURE & FORESTRY
BOB ODOM, COMMISSIONER



February 23, 2006

ANDAL JOHNSON
DEPUTY COMMISSIONER

ISTANT
MISSIONERS

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ew Keppinger
) 925-3770
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edley E. Spicer
) 922-1269
x: 922-2577

Kim Pagel
Syngenta Crop Protection, Inc.
P. O. Box 11
St. Gabriel, LA 70776-0011

Dear Mr. Pagel:

Your application for registration of Agricultural Liming Materials has been reviewed and accepted for our Fiscal Year starting July 1, 2006 through June 30, 2007.

Your company has been assigned Manufacturer Number 72L. Please use this number on all correspondence with this office.

If we may be of any further assistance, please contact Mary Williams at 225/342-5812.

Sincerely,

Benny Fontenot
C. Benny Fontenot
Director, Fertilizer Commission

CBF:mw

enclosure



LOUISIANA DEPARTMENT OF AGRICULTURE & FORESTRY

BOB ODOM, COMMISSIONER

Agricultural Chemistry Division, P.O. Box 91081, Baton Rouge, LA 70821-9081, (225) 342-5812, FAX (225) 342-0027



APPLICATION FOR REGISTRATION OF AGRICULTURAL LIMING MATERIALS

Syngenta Crop Protection, Inc.
Name of Company

PO Box 11
Mailing Address

St. Gabriel LA 70776-0011
City and State Zip Code

(225) 642-1100
Telephone Number

St. Gabriel Louisiana facility
Location

Federal Tax ID # 562001572
Social Security # or Federal Tax I. D. #

Types of Agricultural Liming Materials Sold: Check appropriate space(s).

Agricultural Liming Materials ☒
(RECAL I, RECAL II)
ragonite

Hydrated Lime

Marl

Bulk

Suspension Materials

Ground Limestone

Dolomitic Liming Material (Liquid)

Ground Shells

Hydrated Lime

Marl

Bulk

Suspension Materials

Ground Limestone

Dolomitic Liming Material (Liquid)

RECEIVED
2006 FEB 23 4:10:03
STATE REVENUE SECTION

We agree to submit quarterly reports to the Commissioner. The quarter shall end on the last day of March, June, September, and December as provided in R. S. 3:1367.

We agree to pay an annual registration fee of \$15.00 on or before March 31st. If the registration application is submitted after March 31st, there is a \$50.00 late fee to be submitted along with the registration fee of \$15.00.

We further agree to keep records necessary to accurately indicate the tonnage of agricultural liming materials and pay the fee of 10 cents per ton on each ton of material delivered in this state. The fee imposed by this Subsection shall be paid quarterly at the same time the tonnage report is filed. We agree to permit the Commissioner or his duly authorized representative to examine these records at any time to verify the statement of tonnage.

Mr. Kim Pagel
Company Representative (Please Print)

Kim Pagel
Signature (Sign above in ink.)

Staff Engineer
Title

February 16, 2006

FOR OFFICE USE ONLY

Approved By *Benny Antwan*

Date *3-1-06*

Guarantor Number *72L*

SUBMIT IN DUPLICATE: ONE COPY WILL BE RETURNED AS CERTIFICATION OF REGISTRATION.

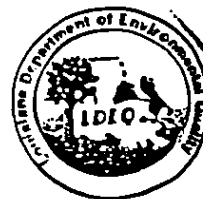
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OFFICE USE

Transmittal #

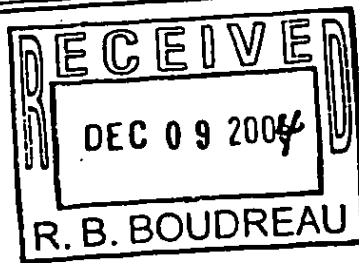
Check #

State of Louisiana
Department of Environmental Quality



MIKE D. McDANIEL, Ph.D.
SECRETARY

BABINEAUX BLANCO
GOVERNOR



December 6, 2004

CERTIFIED MAIL - RETURN RECEIPT REQUESTED 7002 2030 0002 8915 7374

Mr. Richard Boudreau
Syngenta Crop Corporation, Inc.
Post Office Box 11
St. Gabriel, Louisiana 70776

RE: Annual Beneficial Use/RECAL II Report for 2003-2004
Syngenta Crop Protection, Inc., St. Gabriel, Louisiana; AI Number 2367
Beneficial-Use Permit GD-047-0224 /P-0311
3905 Highway 75, St. Gabriel; Iberville Parish

Mr. Boudreau:

The Environmental Technology Division (ETD) has completed its review of the above referenced annual report dated September 16, 2004. Thank you for providing this information.

The Department has determined that the report is not acceptable. The basis of this determination follows:

- The reporting period is from July 1, 2003 through June 30, 2004. The annual reports should be submitted to the Department by August 1 of each reporting year, in accordance with LAC 33:VII.1109.F.1.a.iii. The submitted annual report was received on September 23, 2004. Syngenta explained that the report was late because of difficulties experienced in collecting the required information, however a request for extension of time was not made and no extension was granted.
- Syngenta reported that the Cation Exchange Capacity (CEC) values were not available for the reporting year because the contracted laboratory discontinued conducting the test on soil samples. Therefore, CEC values were estimated based on the Sum of Bases results. Syngenta did not explain how these values were calculated. Since the values were not calculated in the approved manner the CEC values are not acceptable.
- The Beneficial Use Permit for RECAL II requires reporting of the five specific heavy metal (lead, zinc, nickel, copper, and cadmium) loading rates to the soil as a result of the



RECAL II application. Annual test data for all RECAL II parameters for a shipment sampled on December 12, 2003 showed that all parameters, including TCLP, showed values within guidelines except for total lead. The Total Lead concentration was 3.3 ppm, which is about 10 percent higher than the specified maximum concentration of 3.0 ppm listed in the Permit. Therefore, Syngenta established new specifications for the average lead concentration and maximum concentration of RECAL II without using an approved method.

- Lead Average for the reporting period 2003-2004 was modified from 1.4 ppm to 4.5 ppm based on the analysis of ten loads from 2003. Then, the lead loading calculations were corrected to include this new revised average lead concentration. Concurrently, the maximum concentration of lead was modified from <3.0 ppm to 7.2 ppm based on the analysis of ten loads from 2003. Syngenta did not follow procedure specified in the permit for determining and receiving Department approval for revised lead concentration limits.
- Moreover, Syngenta calculated the lead average based on 10 soil samples collected in February, March, May, September, October and November of 2003, and all these samples were received at the same time by STL lab for analysis on August 21, 2004, a time period ranging from 10 months to 18 months. The lab analyzed all of the samples on August 24, 2004. In accordance with the EPA SW-846 method, the maximum holding time for metals is 6 months. Syngenta did not explain in the annual report why some of the soil samples were retained more than a year prior to their analysis, and how the samples were kept in custody to prevent any tampering. The excessive holding time and the custody issues raise significant quality control issues that make the information suspect and unusable. Moreover, Syngenta did not explain why samples taken in February, March and May 2003 were used to calculate the average lead concentration for the reporting period from July 1, 2003 to June 30, 2004.
- It appears also that a typo was overlooked on the Specifications of RECAL II Typical Chemical Characteristics list. In the conditions of the Permit, the calcium chloride concentration (Dry basis, WT %) is listed as ≤ 3.0 ppm. In the 2003-2004 Annual Report, the calcium chloride concentration (Dry basis, WT %) is listed as ≥ 3.0 ppm.
- Syngenta did not notify the Department of their intention to modify these values, and implemented these modifications without prior approval. The current Standard Permit specifies that land applications with RECAL II at the Facilities shall be in accordance with the representations made in the permit application accepted by the Solid Waste Division and all conditions of the Permit, and no modifications may be effected without prior approval of the Secretary in accordance with LAC 33:VV.517.A. If the intention of

Richard Boudreau

September 6, 2004

RECAL II Annual Report for 2003-2004

Page 3 of 3

Syngenta is to modify and implement these changes, Syngenta must contact the Permit Division to initiate the pertinent permit modifications.

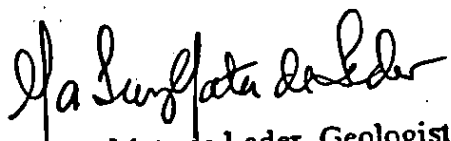
Please submit a written response within thirty days after the receipt of this letter, addressing each of the concerns above and proposing actions to be taken to provide the Department with the required information.

Responses should be submitted in triplicate to the attention of:

Tim Knight, Administrator
Environmental Technology Division
Louisiana Department of Environmental Quality
P.O. Box 4314
Baton Rouge, LA 70821-4314.

Should you have any questions regarding this matter please contact me at (225) 219-3420.

Sincerely,



Luzma Mata de Leder, Geologist
Environmental Technology Division

lml

- c: LDEQ File Scanning Room 144 -SW file
Douglas Bradford - Environmental Technology Division
Beth Scardina, Permits Division
Keith Williams, Permits Division

Syngenta Crop Protection, Inc
Post Office Box 11
St. Gabriel, LA 70776

Tel. 225 642 1100

syngenta

Certified Mail : 7003 2260 0004 8028 4976

January 7, 2005

Mr. Tim Knight, Administrator
Environmental Technology Division
Louisiana Department of Environmental Quality
P.O. Box 4314
Baton Rouge, LA 70821-4314

RE: LDEQ Letter of Comment Dated December 6, 2004 On Syngenta Annual
Beneficial Use/RECAL II Report 2003-2004
Beneficial Use Permit GD-047-0224/ P-0311

AI Number 2367

Dear Mr. Knight:

Syngenta received on December 9, 2004 the LDEQ letter dated December 6, 2004 commenting on the Syngenta Annual Beneficial Use/RECAL II Report for 2003-2004.

Syngenta regrets that an LDEQ review of the report determined it to be unacceptable. LDEQ listed seven specific comments requesting additional information. Syngenta provides the following additional information as responses to the LDEQ comments in order to render the report acceptable for no further action:

LDEQ Comment #1:

The reporting period is from July 1, 2003 through June 30, 2004. The annual reports should be submitted to the Department by August 1 of each reporting year, in accordance with LAC 33:VII.1109.F.1.a.iii. The submitted annual report was received on September 23, 2004. Syngenta explained that the report was late because of difficulties experienced in collecting the required information, however a request for extension of time was not made and no extension was given.

Syngenta Response:

Syngenta will ensure that the information required for all future reports is available

on a timely basis, so that the annual report can be submitted by the deadline. The RECAL II beneficial use permit is one of the first beneficial use permits issued by LDEQ. The site has distributed RECAL II since 1988 under temporary permits until 1996 when the current permit was issued. It has been a model program saving local farmers over \$2 MM during that time span. During these sixteen years, Syngenta has never received any deficiency notices for the program despite many inspection and report reviews by LDEQ.

Syngenta was not aware that report extensions were provided. Syngenta performed a management review of the RECAL II distribution program as a result of the late report. Corrective measures have been implemented to ensure that data for the RECAL II Annual report is timely. Even though corrective measures implemented by Syngenta should not allow future late reports, if for any reason a future report is suspected of being late, Syngenta will provide LDEQ with a notification of the reasons and a request for an extension.

LDEQ Comment # 2:

Syngenta reported that the Cation Exchange Capacity (CEC) values were not available for the reporting year because the contracted laboratory discontinued conducting the test on soil samples. Therefore, CEC values were estimated based on the Sum of Bases results. Syngenta did not explain how these values were calculated. Since the values were not calculated in the approved manner the CEC values are not acceptable.

Syngenta Response:

There is no specified CEC procedure in the RECAL II permit or permit application. The LDEQ regulations in LAC 33:VII.115 define Cation Exchange Capacity as the sum of the cations for soils with pH below neutral. All RECAL II candidate preapplication soils typically have a pH below neutral in order to justify use of the RECAL II. The sum of the bases is an acceptable alternate for the sum of the cations as defined in the CEC definition. The bases include the cations K, Na, Mg, and Ca. The CEC includes K, Na, Mg, Ca, Al, and H. According to Louisiana Cooperative Extension Service Agents and the LSU Soils Lab Chemists, south Louisiana topsoils are typically low in Al and H, so the sum of the bases is the sum of the cations predominantly present in the soils as required by the LDEQ definition of CEC in the regulations.

Tim Knight

July 7, 2005

RECAL II Report Additional Information

Page 3 of 10

Additionally, the CEC result is used to define the range as either <5 meq/100 g, 5-15 meq/100 g, or >15 meq/100 g as needed to determine the metals loading limit. An exact value is not absolutely required because the CEC value must only fall into one of these three ranges. The metals regulatory loading limits for any land application of a beneficial use material is lower for soils that have a preapplication CEC in the lower range. For example, if the CEC is <5 the LDEQ lead loading limit is 500 lb./acre; if the CEC is between 5-15 meq/100 g the regulatory loading limit for lead is 1000 lb./acre; and if the CEC is >15 , the regulatory loading limit for lead is 2000 lb./acre.

According to the LSU Soils Specialists (see copy of communication in Attachment A) the Sum of the Bases may be slightly lower than the CEC because it does not include a cation such as aluminum. Accordingly, the use of the sum of the bases in determining the regulatory limit for a specific land use most likely should result in a conservatively lower metal limit. For example, if the measured CEC were 5.1 meq/100 g, the sum of the bases may be 4.9 meq/100 g giving a regulatory limit of 500 lb./acre instead of 1000 lb. acre for lead.

Additionally, Louisiana Cooperative Extension Service agronomy specialists agree that the sum of the bases is an acceptable alternate for CEC. See copies of communications from the LSU Soils specialists and/or the LA Cooperative Extension Service Soils Specialists explaining that the sum of the bases is an acceptable alternate to CEC for the purposes of RECAL II land application.

The procedure to set up a farmer for receipt of RECAL II through the auspices of the Louisiana Cooperative Extension Service, that Syngenta and its legacy companies have followed since 1988, includes submittal to the LSU Soils Laboratory a representative sample of the candidate property to receive the RECAL by either the Cooperative Extension Service Parish Agent or the farmer interested in receiving RECAL II. The LSU Soils Lab tests the soil for pH and CEC for the farmer and issues a report with a recommended dosage of anhydrous calcium oxide lime to the farmer or the Parish Cooperative Extension Service Agent. The farmer or the parish agent submits the report to the Syngenta contact person and requests delivery of the lime. Syngenta was not aware that the LSU Soils Laboratory discontinued analyzing both CEC and reporting the sum of the bases until a review of the data prior to the reporting period deadline. The LSU Soils lab reports submitted by several of the farmers to Syngenta for several of the properties, involved in the 2003-2004 report, lacked the CEC or the sum of the bases.

Tim Knight
January 7, 2005

RECAL II Report Additional Information

Page 4 of 10

Syngenta personnel contacted Mr. Rodney Henderson of the LSU Soils Lab in early August concerning the unreported CEC and the bases. Mr. Henderson informed Syngenta that CEC (K, Na, Mg, Ca, Al, and H) was no longer analyzed and reported on soils for farmers unless specifically requested. Mr. Henderson informed Syngenta that the CEC was not analyzed, but the bases (K, Na, Mg, and Ca) were analyzed, but reporting in meq/100 g had been recently discontinued. Syngenta written instructions to the farmers specifies soil pH and CEC to be determined on a representative sample of the soil. Syngenta made arrangements with the LSU Soils Lab to reaffirm that any future soil samples, submitted by farmers for RECAL II distribution, would be analyzed for pH and CEC and Syngenta would pay for any costs incurred.

Since considerable time had elapsed, as an alternative to CEC, Mr. Henderson suggested that he could perform a LSU Soils lab data base search and report the sum of the bases from the analysis performed on the actual samples. He affirmed that the sum of the bases would be an acceptable close approximation to the CEC. As provided in LAC 33:VII.1109.G.3, if the CEC of the pre-application soil is <5 meq/100 g the lead loading limit is 500 lb/acre for a lifetime. If the CEC is between 5-15, the lead loading limit is 1000 lb/acre for a lifetime and if the CEC is >15 the lead loading limit is 2000 lb/acre. Four other metals also have varying loading limits based on the CEC range. Syngenta must report the loading rates in the annual reports for each property compared to the LDEQ loading limits. Almost all sites have had CEC levels between 5-15 meq/100 g. The sum of the bases gave values well within this typical range.

Additionally, since the purpose of the CEC determination is to determine the CEC range in order to establish the LDEQ regulatory limit based on the CEC level of <5 meq/100 g, 5-15 meq/100 g, or >15 meq/100 g, Syngenta used the sum of the bases as an acceptable approximation for the several properties in the 2003-2004 report for which no CEC actual data is available. Even though the use of the sum of the bases is justified as described herein, in order to avoid any future controversy, Syngenta has implemented corrective measures to ensure that the LSU Soils Lab will measure and report the CEC on any RECAL II candidate soils.

As a further justification for the use of the sum of the bases, regardless of the CEC range used to establish the metal loading limit, the metal loading rates from RECAL II application are two to five orders of magnitude below the regulatory limits as noted in Table IV of the 2003-2004 Annual Report. See attached copy of Table IV. For example, the lead loading rate from the application of RECAL II is from 16,000 to 125,000 times lower than the lifetime loading rate limit set by the regulations. Since agricultural liming is typically performed on any one

Tim Knight
January 7, 2005

RECAL II Report Additional Information

Page 5 of 10

property no more often than once per every four or five years, the RECAL II application will never exceed the lifetime (typically defined as 70 years) limit. Additionally, the RECAL II permit is not being renewed. RECAL II will not be generated after 2006, so RECAL II will not be applied to any sites.

To support the above conclusions, untreated sections of farmlands reported in the 2003-2004 Annual Report were resampled for CEC and Sum of the Bases. The CEC results were compared to the sum of the bases in the table provided in Attachment A. The data shows that the sum of the bases compares favorably for determining into which of the three CEC ranges (<5, 5-15, or >15) these properties can be categorized for determining the appropriate LDEQ metals loading rate limits. The data shows that, regardless of the Sum of the Bases or the CEC, all the data falls within the 5-15 meq/100 g range and results in the same regulatory metal loading rate limits reported in the Annual Report.

LDEQ Comment #3:

The Beneficial Use Permit for RECAL II requires reporting of the five specific heavy metal (lead, zinc, nickel, copper, and cadmium) loading rates to the soil as a result of the RECAL II application. Annual test data for all RECAL II parameters for a shipment sampled on December 12, 2003 showed that all parameters, including TCLP, showed values within guidelines except for total lead. The Total Lead concentration was 3.3 ppm, which is about 10 percent higher than the specified maximum concentration of 3.0 ppm listed in the Permit. Therefore, Syngenta established new specifications for the average lead concentration and maximum concentration of RECAL II without using an approved method.

Syngenta Response:

The lead concentration is not a release criteria parameter or specification. This is what is represented in the 1996 permit application on page 14 of 22. The comprehensive testing was performed during the reporting period and was reported in the Annual Report. The lead concentration is not and has never been a release criteria parameter that triggers rejection. See copy of the typical chemical characteristics list, excerpted from the permit application, in Attachment A.

The regulatory metals limits to the soils are established by the regulations as loading rate limits in lb./acre and not concentration limits in the material applied. There are no regulatory or permit limited parameters other than those parameters that

have release criteria (i.e., CaCO_3 , CaCl_2 , and Solids Content). The application limits of the RECAL with respect to metals applied to the soil are based on the quantity of RECAL that would exceed the individual metals loading limits as specified in LAC 33:VII.1109.G (1000 lb./acre for lead since the CEC is between 5-15 meq/100 g soil). Even using the revised maximum lead concentration of 7.2 ppm, the loading rates of lead to the soils reported in the 2003-2004 Annual Report from application of RECAL II would be 8000-60,000 times lower than the LDEQ regulatory lead loading rate limit in lb./acre for a lifetime.

LDEQ Comment #4:

Lead average for the reporting period 2003-2004 was modified from 1.4 ppm to 4.5 ppm based on the analysis of ten loads from 2003. Then, the lead loading calculations were corrected to include this new revised average lead concentration. Concurrently, the maximum concentration of lead was modified from <3.0 ppm to 7.2 ppm based on the analysis of ten loads from 2003. Syngenta did not follow procedure specified in the permit for determining and receiving Department approval for revised lead concentration limits.

Syngenta Response:

Syngenta does not believe that updating the chemical characteristics with additional lead analyses was a "modification to the site, facility, process, or disposal method or operation". Syngenta believes that the "land application was in accordance with the representations made in the permit application" as specified in the permit. See the discussion concerning the lead loading rates in the response to Comment #3.

Even though the term "specification" may have been used loosely in the 2003-2004 Annual Report it was never Syngenta's, Syngenta's legacy companies', or the permit's intent that the non-release criteria parameters be shipping criteria specifications.

LDEQ Comment #5:

Moreover, Syngenta calculated lead average based on 10 soil samples collected in February, March, May, September, October, and November of 2003, and all these samples were received at the same time by STL lab for analysis on August 21, 2004, a time period ranging from 10 months to 18 months. The lab analysed all of the samples on August 24, 2004. In accordance with the EPA SW-846 method, the maximum holding time for metals is 6 months. Syngenta did not explain in the annual report why some of the soil samples were retained more than a year prior to their analysis, and how the samples were kept in custody to prevent any tampering. The excessive holding time

Mr. Tim Knight

January 7, 2005

RECAL II Report Additional Information.

Page 7 of 10

and the custody issues raise significant quality control issues that make the information suspect and unusable. Moreover, Syngenta did not explain why samples taken in February, March and May 2003 were used to calculate the average lead concentration for the reporting period from July 1, 2003 to June 30, 2004.

Syngenta Response:

In determining the updated typical lead level, several loads were from outside the reporting period. To mitigate the fact that several retain samples were from outside the reporting period a new set of ten retains from within the 2003-2004 reporting period were analyzed recently. The results, included in the tables in Attachment B, show that the average and maximums from samples within the reporting period were essentially the same as the data reported in the 2003-2004 report.

The SW-846 guidance document (SW 846-Table 3-1), although not a regulation and guidance only, does recommend a six-month maximum holding time for inorganic metals analysis in solid and liquid samples. The six month holding time limit has technical justification for metals in aqueous solution, but there is no technical justification for a holding time limit for the five metals in soils or solids listed in the LAC 33:VII.1109. Some metallic ionic species can precipitate from solution after storage for greater than six months, however no physical or chemical loss of any of the metal species listed in LAC 33:VII.1109 can occur from a solid. Syngenta believes that the holding time limit of six months for solid samples in table 3-1 of SW-846 was an arbitrary recommendation by the SW-846 author, without technical merit, in order to be consistent with the recommendation for a holding time limit for metals in aqueous samples.

No holding time limit for totals metals analysis in solids is confirmed in the following technical references found in the LDEQ Library (1) *Environmental Sampling and Analysis for Metals by Csuros and Csuros*, p. 208, "Holding Times", CRC Press, 2002, and in (2) *Laboratory Data Functional Guidelines For Evaluating Inorganics Analyses*, EPA/540/R/94/083- PB95-963525, December 1994. Both of these references indicate that there is no holding time limit for lead, nickel, cadmium, zinc, and copper analyses for solid samples, and that the holding time limit is for aqueous metal solutions. This is logical because these inorganic constituents do not decompose or react with time to form some other component that is not analyzable by digestion and ICP-AES as evidenced by the two sets of lead analytical data in Attachment B. One table lists lead data from retain samples taken in 2003 and the other from retain samples taken in late 2003 and early 2004. The statistical analysis of each set of data shows little difference if any.

Tim Knight

January 7, 2005

RECAL II Report Additional Information

Page 8 of 10

There are no custody issues concerning the retain samples of RECAL II shipments. The RECAL II samples of shipments are retained on-site in a secure sample retention building under Syngenta's custody only for a minimum of three years. For the most recent additional lead analyses, the selected samples were forwarded to an LDEQ accredited contract lab under chain-of- custody. The standard laboratory practice at the Syngenta Environmental Lab (currently the only, or one of the few, LDEQ certified non-commercial labs) is to retain all RECAL II shipment samples for at least three years and maintain the sample records accordingly.

LDEQ Comment #6:

It appears that a typo was overlooked on the Specifications of RECAL II Typical Chemical Characteristics list. In the conditions of the Permit, the calcium chloride concentration (Dry basis, WT %) is listed as ≤ 3.0 ppm. In the 2003-2204 Annual Report, the calcium chloride concentration (Dry basis, WT %) is listed as ≥ 3.0 ppm.

Syngenta Response:

The list of RECAL II chemical characteristics provided in the 2003-2004 Annual Report is a list of specifications and typical chemical characteristics. The parameters marked with a double asterisk are internal typical characteristic ranges and not permit or regulatory limited specifications as noted by the footnotes. The list of typical RECAL II chemical characteristics provided in the 2003-2004 Annual Report did have a typographical error for the calcium chloride concentration less than character. The corrected character and units are ≤ 3 % (Dry Basis, Wt %). Syngenta includes a corrected copy in Attachment A of the List of Typical RECAL II Chemical Characteristics that was included in the Annual Report. That table showed wt % as the correct unit.

Syngenta reluctantly points out that there is a typographical error in the LDEQ's letter dated December 6, 2004 in Comment # 6 as noted above (see bolded year as 2204 should be 2004). The typographical error was duplicated as received in the above comment reprint for reporting purposes to ensure no deviation from the original verbiage. Additionally, the units LDEQ cites are ppm, however the original document had the correct units as wt%, but the incorrect less than character. Typographical errors are unfortunately common occasionally even in important documents such as LDEQ's letter.

LDEQ Comment # 7:

Syngenta did not notify the Department of their intention to modify these values, and implemented these modifications without prior approval. The current Standard Permit specifies that land applications with RECAL II at the Facilities shall be in accordance with the representations made in the permit application accepted by the Solid Waste Division and all conditions of the Permit, and no modifications may be effected without prior approval of the Secretary in accordance with LAC 33:V.517.A. If the intention of Syngenta is to modify and implement these changes, Syngenta must contact the Permit Division to initiate the pertinent permit modifications.

Syngenta Response:

The land application was made in accordance with all representations made in the permit application. The application of RECAL II by the farmers was safe and effective and the resulting lead loading rate to the land was from 16,000 to 125,000 times lower than the LDEQ lifetime limit. The revision of the typical RECAL II characteristics maximum lead level was not a "modification to the site, facility, process, or disposal method or operation" as specified in the permit. Syngenta intended that the Annual report be the proper form for notifying LDEQ of the minor change.

Syngenta does not believe that this was a "modification to the site, facility, process, or disposal method or operation" and Syngenta believes that the "land application was in accordance with the representations made in the permit application" as specified in the permit. See the discussion concerning the lead loading rates in the response to Comment #3.

Even though the term "specification" may have been used loosely in the 2003-2004 Annual Report it was never Syngenta's, Syngenta's legacy companies', or the permit's intent that the non-release criteria parameters be shipping criteria specifications.

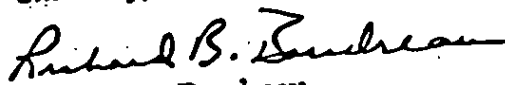
Syngenta requests that LDEQ issue a letter of no further action and acceptance of the 2003-2004 RECAL II Annual Report. Syngenta will ensure that future reports meet the deadline or will request an extension if the report, for some reason, cannot be submitted by the deadline. Syngenta does not believe that the items mentioned above require permit modification or further review by LDEQ. Syngenta will notify LDEQ of any "modification to the site, facility, process, or disposal method or operation" and Syngenta will continue to ensure "land application in accordance with the representations made in the permit application".

Tim Knight
January 7, 2005

RECAL II Report Additional Information
Page 10 of 10

Syngenta appreciates the opportunity to respond to the LDEQ comments and welcomes a meeting for any further discussion or questions. If you have any questions please contact Mr. Richard Boudreau at 225-642-1257.

Sincerely,


Richard B. Boudreau
Sr. Staff Env. Eng.

CC: Mr. Douglas Bradford, LDEQ, Environmental Technology Division
Ms. Beth Scardina, LDEQ, Permits Division
Mr. Keith Williams, LDEQ, Permits Division
Mr. John D. Roy- LSU Ag Center, EBR Parish County Agent, Cooperative Extension Service
Mr. J. Stevens- LSU Ag Center, Cooperative Extension Service, Alexandria, LA

Attachment A

- Communication From LSU Soils Specialists on CEC and Sum of the Bases
- Corrected List of Typical RECAL II Characteristics Excerpted from the Permit Application (with typographical correction noted in Comment # 6)
- Table Comparing CEC vs. Sum of the Bases

From: Stevens, Jr., J. Cheston [JStevens@agcenter.lsu.edu]
Sent: Thursday, January 06, 2005 8:07 PM
To: Boudreau Richard USSG
Cc: Stevens, Jr., J. Cheston
Subject: Sum Of Bases (SOB) vs. Cation Exchange Capacity (CEC)

Importance: High
Richard,

This message regards our prior communications, both email and telephone conversations, on the above mentioned subject:

In my opinion, for your use in evaluating the soils where the RECAL product will/has been land-applied, the Sum Of Bases (SOB) calculation is quite acceptable as an estimation of cation exchange capacity (CEC.) The SOB, as determined from data on the Soil Test Results Sheet (received on each soil sample from the individual application sites) of the LSU AgCenter Soil Testing And Plant Analysis Laboratory, is an alternative measure that I deem acceptable.

With our understanding and knowledge of the soils where this RECAL product has been applied, the soils are of a coarse to medium texture (sandy-natured to silt/silt loam textures), where the CEC would usually fall within a range of values of perhaps 3 to 17 meq/100 gm. of soil. Many of these soils are acidic in nature, requiring lime to raise soil pH to a more acceptable level for crop production and increased fertilizer efficiency. The results from our lab include a determination for pH (soil reaction), which is a part of the liming recommendation. Additionally, the soil texture is determined and reported on the Soil Test Results Sheet. These are integral parts of a lime recommendation, along with the incremental titration procedure to determine how much lime would be needed (tons per acre) to raise the soil pH to different levels.

The areas where the RECAL product was applied, in parishes adjacent to East Baton Rouge Parish, are prime candidates for liming materials. I commend you and others with the Syngenta group for having entered this by-product into the marketplace. Compliance with all of the guidelines/regulations from LDEQ, LDAF, etc. are of the utmost importance.

I am available, as in the past, for continued support/training for the use of this product; don't hesitate to contact me.

Thanks,

J Stevens
Associate Professor/Specialist
Soil Fertility/Nutrient Management
LSU AgCenter, Dean Lee Research/Extension Center
8208 Tom Bowman Drive
Alexandria, LA 71302
Central Region Office : 318-427-4424
Desk 318-427-4408
Cell: 318-308-0754

Richard USSG

Manoch [MKongchum@agcenter.lsu.edu]

December 30, 2004 3:47 PM

Boudreau Richard USSG; Henderson, Rodney E.

E: Sum of Bases

the bases, I think Rodney can send you after holiday period. We'll open on Jan 03, 2005.

sum of bases is the sum of K, Na, Ca, and Mg. You can determine CEC by the sum of K, Na, Ca, Mg, Al, and H (acidity).
sum of the bases should be less than the actual CEC but in some soils such as cultivated soil (applied fertilizer), saline soil
the bases may be greater than actual CEC (because of extra K, Ca etc from fertilizer and Na, K etc from salt water).

Determined in the lab is actual CEC by replacing all of cations (K, Na, Ca, Mg, Al, and H) with Ammonium and
amount of the ammonium by distillation technique.

ard.boudreau@syngenta.com [mailto:richard.boudreau@syngenta.com]

12/30/2004 1:52 PM

erson, Rodney E.

um, Manoch

FW: Sum of Bases

Thank you for the information you provided to Syngenta in August. There are just two more things you may be able to
with>

Syngenta obtained the CEC values recently from the LSU Soil Characterization Lab on the samples of farmers property with
fication numbers listed below that were dated 12/15/04. It is my understanding that from the data base information you
these samples you could also determine the sum of the bases fairly readily on these samples. Could either of
provide me with the sum of the bases for these four samples as soon as possible? You can send this info by e-mail if that is
you.

0001

0002

0003

0004

ly, can you describe briefly how the sum of the bases is determined? Which constituents (certain cations I assume-which
does it include? Which constituents (which cations?) are included in the CEC method that would not be included in the
the bases?

d B. Boudreau

ff Env. Eng.

Crop Protection, Inc.

riol, LA 70776

42-1257

d.boudreau@syngenta.com

Original Message-----

son, Rodney E. [mailto:RHenderson@agcenter.lsu.edu]
August 13, 2004 3:20 PM

Richard USSG

Sample Number Sample ID Sum of Bases (meq/100 gm)

#4 9.02

#5 9.25

#6 9.85

#8 13.40

#9 8.09

Sum of Bases you requested for Charles Hamilton, 11003 Dewberry, St. Francisville, LA 70775.
Samples were submitted on 1/30/2002.
Anything else, please let me know.

Rodney E. Henderson
SU Agronomy Dept.

RECAL II TYPICAL CHEMICAL CHARACTERISTICS

UM CARBONATE (DRY BASIS, WT %)	≥65
UM CHLORIDE (DRY BASIS, WT %)	≤3.0
OS CONTENT (AS IS, WT %)	≥38.0
CIUM SULFATE (DRY BASIS, WT %)	<25.0
CIUM HYDROGEN PHOSPHATE (DRY BASIS, WT %)	<10.0
LCIUM HYDROXIDE (DRY BASIS, WT%)	<5
ON HYDROXIDE (DRY BASIS, WT %)	<2.0
DIUM CHLORIDE (DRY BASIS, WT %)	<0.3
HL NITROGEN (AS IS, WT %)	<2500
OC (AS IS, PPM)	<3900
I (50/50 IN WATER)	9.1-12.7
YANIDE (AS IS, PPM)	<3.0
OTAL TRIAZINES (AS IS, PPM)	<10.0
YANATE (AS IS, PPM)	<10.0
CYANOGEN CHLORIDE (AS IS, PPM)	<1.0
FREE CHLORINE (AS IS, PPM)	<6.0
SODIUM THIOSULFATE (AS IS, PPM)	≤150
(FULL) (AS IS, MG/L)	PASSES

*Test frequency will be each load with values shown as release criteria.

**Test frequency will be on request because considerable data shows that analysis of this constituent is unnecessary.

RECAL II TYPICAL CHEMICAL CHARACTERISTICS (CONTINUED)

AVERAGE AND MAX CONCENTRATION OF SW REGULATED METALS
AND CIBA CEILING VALUES OF OTHER METALS IN RECAL II TO
EACH SITE (SINCE APRIL, 1991)

	<u>AVERAGE</u> 4.5 ³	<u>MAX</u> 7.2 ³
LEAD (AS IS BASIS, PPM)		
* COPPER (AS IS BASIS, PPM)	8.2	<62.0
* CADMIUM (AS IS BASIS, PPM)	1.2	<4.8
* NICKEL (AS IS BASIS, PPM)	18.6	<45.0
* ZINC (AS IS BASIS, PPM)	100.1	<252.0
		<u>CIBA² CEILING</u>
		<u>VALUE</u>
ARSENIC (AS IS BASIS, PPM)	--	<31.0
** BARIUM (AS IS BASIS, PPM)	--	<290.0
** CHROMIUM (TOTAL, AS IS BASIS, PPM)	--	<90.0
** CHROMIUM (HEXA VALENT, AS IS BASIS, PPM)	--	<1.0
** MERCURY (AS IS BASIS, PPM)	--	0.25
** SELENIUM (AS IS BASIS, PPM)	--	0.5
** SILVER (AS IS BASIS, PPM)	--	2.5

³About 100 loads analyzed since 1989 for Pb, Cu, Cd, Ni, Zn.

²Test frequency will be on request because of considerable amount of data already obtained.

¹These ceiling values were initially established in 1/89 as target values after analyzing ten lots. Testing was continued on every 15th load until 4/90 resulting in 11 more lots tested for these metals. The values shown in this table are updated ceiling values based on the additional data. These values still remain as target values. None have been exceeded. For explanation of hexavalent chromium analysis see report in

Appendix XI.
Established on 20 loads from 2003-2004.

Comparison of CEC to Sum of the Bases for Same Fields Sampled at Different Times Before Recal II Application				100 g			
Sample ID	Sample date	Field Identification	CEC, meq/100 g	Sum of bases, meq/100 g	Sample ID	Sample date	Sum of bases, meq/100 g
1104160001	12/15/2004	Hamilton #5	8.64	7.43	1102008021	1/30/2002	9.25
1104160002	12/15/2004	Hamilton #6	7.73	6.21	1102008022	1/30/2002	9.85
1104160003	12/15/2004	Hamilton #8	8.27	7.26	1102008023	1/30/2002	13.40
1104160004	12/15/2004	Hamilton #9	8.94	6.48	1102008024	1/30/2002	8.09

•• all values determined, whether CEC or Sum of the Bases, result in 5-15 meq/100g range and the same metals regulatory loading rate limit to the soil as used in the 2003-2004 Annual Report.

Attachment B

- Table of Lead Analysis of 2003 RECAL II Retain Samples Provided in Annual Report
- Table of Lead Analysis of 2003-2004 RECAL II Samples From Reporting Period

Lead Data - 2003

Results		
Sample LIMS #	DATE SAMPLED	mg/kg
402028	2/7/2003	3.2
404113	2/21/2003	3
405456	3/2/2003	2.4
413177	5/1/2003	4.3
415637	5/30/2003	7.2
425012	9/17/2003	4.4
425470	9/22/2003	6.4
426665	10/8/2003	5.2
429436	11/9/2003	4.3
430591	11/22/2003	4.8
Average		4.5
High		7.2
Low		2.4
Std Dev (sigma)		1.4875782
Avg + 2 sigma		7.47

LOG NO	SAMPLE DESC	DATE SAMPL	UNITS	CHEMICAL NAME	QUANTITY	CHEMICAL FLAGS	GROUP CODE
M439650	REC AL II 10.08.03	10/8/2003	mg/kg	Lead		5.2	@PB-6010
M439650	REC AL II 11.05.03	10/5/2003	mg/kg	Lead		2.9	@PB-6010
M439650	REC AL II 11.13.03	11/13/2003	mg/kg	Lead		2.8	@PB-6010
M439650	REC AL II 01.15.04	1/15/2004	mg/kg	Lead		4	@PB-6010
M439650	REC AL II 02.28.04	2/28/2004	mg/kg	Lead		4.2	@PB-6010
M439650	REC AL II 03.12.04	3/12/2004	mg/kg	Lead		4.3	@PB-6010
M439650	REC AL II 03.26.04	3/26/2004	mg/kg	Lead		4.5	@PB-6010
M439650	REC AL II 04.13.04	4/13/2004	mg/kg	Lead		2.8	@PB-6010
M439650	REC AL II 04.27.04	4/27/2004	mg/kg	Lead		6.6	@PB-6010
M439650	REC AL II 05.19.04	5/19/2004	mg/kg	Lead		4.8	@PB-6010
M439650	Method Blank			Lead	<	0.5	@PB-6010
				Max		6.6	
				Avg		3.872727	
				St. Dev		1.583167	
				Avg + 2 sigma		7.1	

Syngenta Name Change Permit Modification Correspondence

syngenta

July 13, 2001

Mr. Michael Vince
Administrator
State of Louisiana
Department of Environmental Quality
Office of Environmental Services
Permits Division
P.O. Box 82135
Baton Rouge, LA 70884

RECEIVED

JUL 16 2001

LA DEPARTMENT OF
ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES

RE: Request for Name Change Modification of Beneficial Use Permit
GPD-047-0224/P-0311 Agency Interest # 2367

Syngenta Crop Protection, Inc. is pleased to submit to LDEQ four bound copies of this modification request. This request is for minor modifications to the Beneficial Use permit GPD-047-0224/P-0311 as a result of merger activities between Novartis Crop Protection, Inc and Zeneca AG Products and resulting ownership/name changes.

Background
Permit GPD 047-0224/P-0311 was issued by LDEQ to Ciba-Geigy Corporation - St. Gabriel Plant on November 25, 1996 for the agricultural distribution of recyclable calcium carbonate (Recal II) as a lime substitute (see copy on LDEQ letter of issuance in Attachment 1). The origin of the calcium carbonate is from the facility NPDES permitted aqueous waste neutralization system.

On February 10, 1997 LDEQ approved a name change permit modification from Ciba-Geigy Corporation to Novartis Crop Protection, Inc. as a result of the merger between Ciba-Geigy Corporation and Sandoz Corporation.

On January 1, 2001 Zeneca AG Products, Inc. merged into Novartis Crop Protection, Inc. to form Syngenta Crop Protection, Inc. Novartis Crop Protection, Inc. is the surviving corporate entity. Syngenta Crop Protection, Inc. U. S. Headquarters is located at 410 Swing Road, Greensboro, North Carolina 27409. Syngenta Crop Protection, Inc. - St. Gabriel Plant made several written notifications to LDEQ on the merger activities between September 21, 2000 and February 9, 2001. Included in Attachment 2 are copies of five letters of merger status notification and an e-mail message.

Permit Modification

In compliance with the change of ownership of permit requirements of LAC 33:VII.517.A.1.bj-iii, Syngenta provides the following:

- 1) Permit modification fee.
 - Attached is a check for \$250 as required by LAC 33:VII.525. D

2) A statement from the permit holder assuming liability for existing violations and conditions.

- This letter and the letters referenced in Attachment 2 provide or infer liability assumption for existing conditions. There are no violations for which to assume responsibility as attested by the site's compliance inspection history.

3) Proof of financial responsibility by the permit holder, as required by LAC 33:VII.727.A.1 and 2.

- Included in Attachment 3 is the original Novartis financial assurance mechanism as a letter of credit (P-383022 dated May 29, 1997) from Chase Manhattan Bank to LDEQ. Also included in Attachment 3 is a copy of the updated Syngenta financial assurance letter of credit with the same ID number dated May 31, 2001 for an aggregate liability amount of \$1,000,000.

4) Information required in LAC 33J.1701

- Syngenta has registered with the Secretary of State and has no outstanding fees or penalties owed to the department.
- Syngenta has no other entities with permits similar to the permit referenced herein.
- The St. Gabriel Plant, now owned by Syngenta, has an excellent environmental compliance history and is a leader in environmental stewardship, pollution prevention, and community outreach.

5) Other minor changes

- Syngenta provides an updated Recal II Operational and Distribution Plan in Attachment 4 showing minor changes in the analytical group responsible for the QC testing and the management of off-spec material. Syngenta implemented these changes due to the loss of one of the analytical groups and the loss of the secondary off-site cement kiln recycling option specified in the Operating Plan submitted with the original permit application.

If you have any questions, please contact Mr. Richard Boudreau at (225) 642-1257.

Sincerely,



Robert W. Slaven, PhD.
Plant Manager



State of Louisiana
Department of Environmental Quality

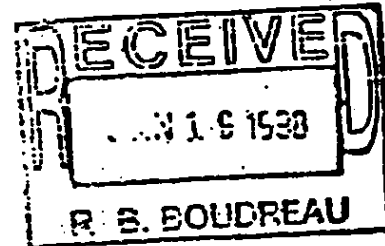


MIKE FOSTER, JR.
GOVERNOR

January 14, 1998

J. DALE GIVENS
SECRETARY

Mr. Richard B. Boudreau
Senior Staff Environmental Engineer
Novartis Crop Protection, Inc.
Post Office Box 11
St. Gabriel, Louisiana 70776



RE: Novartis Crop Protection, Inc.
(formerly Ciba-Geigy Corp.)
Recal II
Permit Modification #1
GPD-047-0224/P-0311
Iberville Parish

Dear Mr. Boudreau:

The Solid Waste Division is in receipt of your
submittal dated July 14, 1997, requesting to modify Standard
permit P-0311.

Your notification of a change of ownership from Ciba-
Geigy Corp. to Novartis Crop Protection, Inc. and the
subsequent update financial information for the above-
referenced facility is hereby approved.

Therefore, Permit Modification #1 is now a part of the
Beneficial Use Permit.

If you have any questions concerning this matter,
please contact Ms. Thea Johnson of the Solid Waste Division
at (504) 765-0249.

Sincerely,

H. M. Strong
Assistant Secretary

HMS:TJ:vod

LDEQ Recal II Distribution Permit 1996



State of Louisiana
Department of Environmental Quality



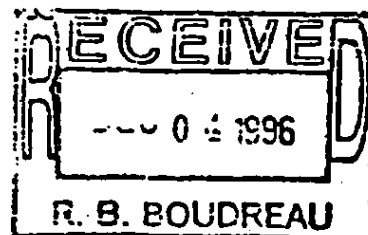
November 25, 1996

J. DALE GIVENS
SECRETARY

"MIKE" FOSTER, JR.
GOVERNOR

CERTIFIED MAIL P 531 376 601
RETURN RECEIPT REQUESTED

Mr. Richard B. Boudreau
Senior Staff Environmental Engineer
Ciba-Geigy Corporation
Post Office Box 11
St. Gabriel, Louisiana 70776



RE: Issuance of Standard Permit
Ciba-Geigy Corporation
Beneficial-Use Permit
GD-047-0224/P-0311
Iberville Parish

Dear Mr. Boudreau:

Under to authority of the Louisiana Environmental Quality Act (LA.R.S. 30:2001 et seq.), I hereby issue the enclosed Standard Permit for the above-referenced facility.

This permit action shall become final and not subject to further administrative review unless, no later than thirty (30) days after receipt of this document, you file a written request for a hearing. This request should be directed to the following:

Attention: Barry Brooks
Louisiana Department of Environmental Quality
Office of Secretary
Post Office Box 82263
Baton Rouge, Louisiana 70884-2263

If you have any questions regarding this matter please contact Ms. Yolunda Righteous of the Solid Waste Division at (504) 765-0249.

Sincerely,

J. Dale Givens
Secretary

JDG:YR:jd

OFFICE OF SOLID AND HAZARDOUS WASTE SOLID WASTE DIVISION

P.O. BOX 82176

BATON ROUGE, LOUISIANA 70884-2176

TELEPHONE (504) 765-0249

FAX (504) 765-0299

AN EQUAL OPPORTUNITY EMPLOYER

Louisiana
Keep it Beautiful



State of Louisiana

Department of Environmental Quality



J. DALE GIVENS
SECRETARY

I. "MIKE" FOSTER, JR.
GOVERNOR

STANDARD PERMIT

Site Number: GD-047-0224

Standard Permit Number P-0311

Pursuant to the Louisiana Environmental Quality Act (La. R.S. 30:2001 et seq.; "the Act") as amended, and the Louisiana Administrative Code, Title 33, Part VII, a Standard Permit is issued to:

Ciba-Geigy Corporation

(hereinafter referred to as the "Permittee")

Limitations and conditions applicable to this Standard Permit:

1. This Standard Permit applies only to the site(s) referred to in the permit application (hereinafter referred to as the "Facilities").
2. The land application at the Facilities are subject to all applicable rules and regulations and orders of the Solid Waste Division and all conditions of this Standard Permit.
3. The land application at the Facilities shall be in accordance with the representations made in the permit application accepted by the Solid Waste Division and all conditions of this Standard Permit.
4. This Standard Permit is issued for ten years from the date of issuance and expires November 25, 2006.
5. No modifications to a site, facility, process or disposal method or operation may be effected without prior approval of the Secretary in accordance with LAC 33:VII.517.A.
6. Failure to land apply at the facilities in accordance with the Act, the Louisiana Administrative Code, Title 33, Part VII, or this Standard Permit shall constitute a violation which will subject the Permittee to the possible imposition of civil penalties in accordance with LAC 33:VII. Chapter 9 and Section 2025 of the Act; and to the possible suspension or revocation of this Standard Permit in accordance with LAC 33:VII.511.H.

OFFICE OF SOLID AND HAZARDOUS WASTE SOLID WASTE DIVISION

P.O. BOX 82178

BATON ROUGE, LOUISIANA 70864-2178

TELEPHONE (504) 765-0249

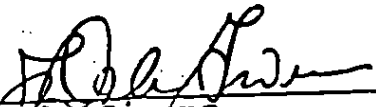
FAX (504) 765-0299

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Louisiana
Keep it Beautiful

7. Each site referenced in the permit application must comply with LA R.S. 30:2040 of the Environmental Quality Act.

8. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within thirty (30) days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing unless the Secretary or the Assistant Secretary elects to suspend other provisions as well.



J. Dale Givens
Secretary
Department of Environmental Quality

11-25-96
Date of Issuance

Annual Report Requirements from Permit

BEST COPY OF THE NEXT 07 PAGES

penalties for knowingly submitting false information, including fine or imprisonment."

Signature

Richard B. Boudreau

Date

8/23/96

Typed Name

Richard B. Boudreau

1107.E.

Facility Administrative Procedures. Standards governing facility administrative procedures are contained in LAC33:VII.1109. The following information on administrative procedures is required for all facilities:

1107.E.1.

a recordkeeping system, types of records to be kept, and the use of records by management to control operations;

The following is a list of records to be kept at the Ciba, St. Gabriel Plant:

1. site locations where RECAL II is distributed.
2. distribution agreement with each farmer. (See example in Appendix VIII).
3. farmers acknowledgment of handling instruction. (See example in Appendix VIII)
4. LSU Agronomy Lab report from Louisiana Cooperative Extension Service showing before application soils test data, soil type, farmers name and location, crops to be grown, and recommended lime application rate. (See example in Appendix VIII)
5. a copy of the topographical map depicting the farm site.
6. all quality control test data obtained on each load and certificate of analysis. (See example in Appendix IX).
7. total weight of the load delivered and date shipped.
8. actual and recommended loading rate of RECAL II at each site. (See Appendix XIII and XIV.)

Annual reports will be submitted similar to those issued to LDEQ-SWD since 1990 including all of the above information. Examples of the method of handling agreement and the distribution agreement are included in Appendix VIII.

Non-Conformity

1107.E.1. Incorporate the standards in 1109.F.1.a-h into the response to this section.

Non-Conformity Response:

The standards in 1109.F.1.a-h are incorporated into the responses to this section as requested in the LDEQ notice of non-conformity. The following are the standards of 1109.F.1 a-h and the responses to these standards.

1109.F.1.a. Reports

Typical Certificate of Analysis

Syngenta Crop Protection, Inc.
St. Gabriel, Louisiana

Certificate Of Analysis

Product ID : RECAL II
No. : 13-Aug-2003
of Lading No. : 308011-02
Position :
File ID : PASS
Reviewed In By : ANDERBR1
Reviewed By (Recal QC) : SELDEAD1

Description	SPECIFICATIONS		RESULTS	
	MIN	MAX		
Carbonate Equivalent	65.00	100.0	95.50	%
Chloride		2.99	0.24	%
Chloride	38.00	100.0	60.37	%

Reviewed By: T-Ray Environmental Operations

Date

8/14/03

Recal Form 1, Rev 8/99

Recal II Typical Chemical Characteristics

(Target Levels)

RECAL II TYPICAL CHEMICAL CHARACTERISTICS

CAIUM CARBONATE (DRY BASIS, WT %)	≥65
CAIUM CHLORIDE (DRY BASIS, WT %)	≤3.0
IDS CONTENT (AS IS, WT %)	≥38.0
LCIUM SULFATE (DRY BASIS, WT %)	<25.0
LCIUM HYDROGEN PHOSPHATE (DRY BASIS, WT %)	<10.0
LCIUM HYDROXIDE (DRY BASIS, WT%)	<5
ON HYDROXIDE (DRY BASIS, WT %)	<2.0
ODIUM CHLORIDE (DRY BASIS, WT %)	<0.3
JEHL NITROGEN (AS IS, WT %)	<2500
OC (AS IS, PPM)	<3900
H (50/50 IN WATER)	9.1-12.7
CYANIDE (AS IS, PPM)	<3.0
TOTAL TRIAZINES (AS IS, PPM)	<10.0
CYANATE (AS IS, PPM)	<10.0
CYANOGEN CHLORIDE (AS IS, PPM)	<1.0
*FREE CHLORINE (AS IS, PPM)	<6.0
*SODIUM THIOSULFATE (AS IS, PPM)	≤150
LP (FULL) (AS IS, MG/L)	PASSES

*Test frequency will be each load with values shown as release criteria.
 **Test frequency will be on request because considerable data shows that analysis of this constituent is unnecessary.

RECAL II TYPICAL CHEMICAL CHARACTERISTICS (CONTINUED)

AVERAGE AND MAX CONCENTRATION OF SW REGULATED METALS
AND CIBA CEILING VALUES OF OTHER METALS IN RECAL II TO
EACH SITE (SINCE APRIL, 1991)

	<u>AVERAGE</u> 4.5 ³	<u>MAX</u> 7.2 ³
*LEAD (AS IS BASIS, PPM)		
*COPPER (AS IS BASIS, PPM)	8.2	<62.0
*CADMIUM (AS IS BASIS, PPM)	1.2	<4.8
*NICKEL (AS IS BASIS, PPM)	18.6	<45.0
*ZINC (AS IS BASIS, PPM)	100.1	<252.0
		<u>CIBA² CEILING</u>
		<u>VALUE</u>
**ARSENIC (AS IS BASIS, PPM)	--	<31.0
**BARIUM (AS IS BASIS, PPM)	--	<290.0
**CHROMIUM (TOTAL, AS IS BASIS, PPM)	--	<90.0
**CHROMIUM (HEXAVALENT, AS IS BASIS, PPM)	--	<1.0
**MERCURY (AS IS BASIS, PPM)	--	0.25
**SELENIUM (AS IS BASIS, PPM)	--	0.5
**SILVER (AS IS BASIS, PPM)	--	2.5

³About 100 loads analyzed since 1989 for Pb, Cu, Cd, Ni, Zn.

²Test frequency will be on request because of considerable amount of data already obtained.

¹These ceiling values were initially established in 1989 as target values after analyzing ten lots. Testing was continued on every 15th load until 1990 resulting in 11 more lots tested for these metals. The values shown in this table are updated ceiling values based on the additional data. The values still remain as target values. None have been exceeded. For explanation of hexavalent chromium analysis see report in Appendix XI.

²Re-established on 20 loads from 2003-2004.

Annual Testing of All Parameters Compared to Target Levels

SMW.TXT
Batch Name: 501023-44
Sample Name:

Sample ID: 498665
Product: RECAL IIYR
Grade:
Sample Description:
Sample Point: RECAL II - SHIPMENTS

General result list report

List of all results entered or expected for sample 05298-10:00:58-RECAL II,
6-Jan-2006 at 14:39.
These results are subject to verification and approval.

Test	R	Component name	Result	St
CAHPO4	N	CALCIUM HYDROGEN PHOSPHATE CAHPO4	0.8 %	E
CALC_CARB	N	CaCO3	76.02 %	E
CALC_CHLOR	N	CaCl2	0.40 %	E
CALC_SULP	N	CaSO4	1.40 (%)	E
CAL_HYDROX	N	CALCIUM HYDROXIDE-CA(OH)2	1.2 %	E
CNCL_RECAL	N	CNCL	0.14 PPM	E
CYANATE	N	CYANATE	< 10 PPM	E
CYANIDE	N	Cyanide	2.15 (ppm)	M
F_CHLORINE	N	FREE CHLORINE	< 0.5 PPM	M
HEX-CHROM	N	HEX CHROMIUM	<3.4 PPM	M
ICP_METALS	N	ANTIMONY (SB)	<1.8 PPM	M
ICP_METALS	N	ARSENIC (AS)	9.2 PPM	E
ICP_METALS	N	BARIUM (BA)	110 PPM	E
ICP_METALS	N	BERYLLIUM (BE)	<0.36 PPM	E
ICP_METALS	N	CADMIUM (CD)	2.4 PPM	E
ICP_METALS	N	CHROMIUM (CR)	25 PPM	E
ICP_METALS	N	COPPER (CU)	16 PPM	E
ICP_METALS	N	Iron (FE)	<4.5 PPM	E
ICP_METALS	N	LEAD (PB)	5.2 PPM	E
ICP_METALS	N	MANGANESE (MN)	<0.91 PPM	E
ICP_METALS	N	NICKEL (NI)	27 PPM	E
ICP_METALS	N	SELENIUM (SE)	<0.23 PPM	M
ICP_METALS	N	SILVER (AG)	<0.91 PPM	M
ICP_METALS	N	THALLIUM (TL)	<0.91 PPM	E
ICP_METALS	N	ZINC (ZN)	130 PPM	E
IRON_HYDRO	N	IRON HYDROXIDE - FE(OH)2	1.95 %	E
KJELDAHL-N	N	KJELDAHL NITROGEN	960 PPM	E
MERCURY	N	TOTAL MERCURY (HG)	0.074 ppm	E
NaCl	N	NaCl	0.10 (%)	E
PH_50PCT	N	pH	11.7	E
SOD_THIO	N	Sodium thiosulfate	28.00 PPM	E
SOLIDS_REC	N	Solids %	41.52 %	E
TCLPMETALS	N	TCLP ANTIMONY	<0.4 ppm	E
TCLPMETALS	N	TCLP ARSENIC	<1 ppm	M
TCLPMETALS	N	TCLP BARIUM	<1 ppm	E
TCLPMETALS	N	TCLP BERYLLIUM	<0.1 ppm	E
TCLPMETALS	N	TCLP CADMIUM	<0.5 ppm	E
TCLPMETALS	N	TCLP CHROMIUM	<1 ppm	E
TCLPMETALS	N	TCLP LEAD	<0.5 ppm	M
TCLPMETALS	N	TCLP MERCURY	<0.02 ppm	E
TCLPMETALS	N	TCLP NICKEL	<0.8 ppm	E

cont'd....

Page 2

Result list for sample no. 498665

Test	R	Component name	Result	St
TCLPMETALS	N	TCLP SELENIUM	<1 ppm	E

SMW.TXT

TCLP METALS	N	TCLP SILVER	<1 ppm	E
TCLP METALS	N	TCLP THALLIUM	<0.2 ppm	E
TCLP SEMIVO	N	TCLP 1,4-DICHLOROBENZENE	<0.05 PPM	E
TCLP SEMIVO	N	TCLP 2,4,5-TRICHLOROPHENOL	<0.05 PPM	E
TCLP SEMIVO	N	TCLP 2,4,6-TRICHLOROPHENOL	<0.05 PPM	E
TCLP SEMIVO	N	TCLP 2,4-DINITROTOLUENE	<0.05 PPM	E
TCLP SEMIVO	N	TCLP CRESOL (O,M,P)	<0.1 PPM	E
TCLP SEMIVO	N	TCLP HEXACHLOROBENZENE	<0.05 PPM	E
TCLP SEMIVO	N	TCLP HEXACHLOROBUTADIENE	<0.05 PPM	E
TCLP SEMIVO	N	TCLP HEXACHLOROETHANE	<0.05 PPM	E
TCLP SEMIVO	N	TCLP NITROBENZENE	<0.25 PPM	E
TCLP SEMIVO	N	TCLP PENTACHLOROPHENOL	<0.25 PPM	E
TCLP SEMIVO	N	TCLP PYRIDINE	<0.02 PPM	E
TCLP VOA	N	TCLP 1,1-DICHLOROETHENE	<0.02 PPM	E
TCLP VOA	N	TCLP 1,2-DICHLOROETHANE	<0.02 PPM	E
TCLP VOA	N	TCLP BENZENE	<0.02 PPM	E
TCLP VOA	N	TCLP CARBONTETRACHLORIDE	<0.02 PPM	E
TCLP VOA	N	TCLP CHLOROBENZENE	<0.02 PPM	E
TCLP VOA	N	TCLP CHLOROFORM	<0.02 PPM	E
TCLP VOA	N	TCLP METHYL ETHYL KETONE	<0.1 PPM	E
TCLP VOA	N	TCLP TETRACHLOROETHYLENE	<0.02 PPM	E
TCLP VOA	N	TCLP TRICHLOROETHYLENE	<0.02 PPM	E
TCLP VOA	N	TCLP VINYL CHLORIDE	<0.008 PPM	E
TCLP HERBS	N	TCLP 2,4,5-TP SILVEX	<0.025 PPM	E
TCLP HERBS	N	TCLP 2,4-D	<0.025 PPM	E
TCLP PESTS	N	TCLP CHLORODANE	<0.025 PPM	E
TCLP PESTS	N	TCLP ENDRIN	<0.005 PPM	E
TCLP PESTS	N	TCLP HEPTACHLOR	<0.0025 PPM	E
TCLP PESTS	N	TCLP HEPTACHLOR EPOXIDE	<0.0025 PPM	E
TCLP PESTS	N	TCLP LINDANE (G-BHC)	<0.0025 PPM	E
TCLP PESTS	N	TCLP METHOXYCHLOR	<0.025 PPM	E
TCLP PESTS	N	TCLP TOXAPHENE	<0.25 PPM	E
TCT	N	TCT	<5.00 ppm	E
TOC RECAL	N	TOC	332.50 (ppm)	E

Notes:

All entered results have their current status displayed
status A is authorised

R is rejected

M is result entered and modified

E is result entered

X is cancelled

GENRESLIST

SYNGENTA - ST. GABRIEL - Annual Re-certification Analysis of RECAL II
COMPOSITING LOG SHEET

Matrix: RECAL II Solids

Page 1 of 1

The compositing of individual aliquots and the preparation of samples for analyses have been completed following the procedures and requirements as outlined in the SOP 3067 and SOP 3074.

Name Bruce Cox

Date 10/25/05

Lab	Sample Container
NPDES	2 Ziploc bags
Applications	1 16-oz jar
Contract Laboratory	3 16-oz jars

Syngenta Crop Protection, Inc.
St. Gabriel Plant

RCRA LABORATORY CHAIN OF CUSTODY
Only one sample type per COC
(Multiple containers of the same sample are allowed)
Please complete shaded topics

SRL
Sample Receiving Log Number
(lab use only)

NAME

Terry Roy
Please Print

TITLE

☒ OPERATOR ☐ ENGINEER
☐ CHEMIST ☒ SUPERVISOR
☐ Other:

Please Print

UNIT

E.T.

Cost Center

8173

Waste#

(IF AVAILABLE)

(signature)

have followed plant procedure L-2 to obtain a representative sample.

Circle the sampling device used in sampling: Scrap

Thief Valve (ant. req'd) Valve (ant. no req'd)

Other Batch # 501023-44

MATRIX

Aqueous Liquid Organic Liquid Solid Sludge

Analysis Required: ☐ Characterization/Verification ☐ Compatibility
☐ Preincineration ☒ Other yearly analysis

ANY SAMPLE HELD LONGER THAN 15 MINUTES BEFORE LAB DROP-OFF SHOULD BE KEPT ON ICE

SAMPLE DESCRIPTION

(must match descr. on WDS)
(Dike sludge, Aq. XYZ, etc.)

(trailer, tank, drum #, etc.)

minidrum

(military)

Used

Indicate size (oz.)

Indicate size (oz.)

Indicate size (oz.)

Grab Composite

Recel II

Batch # 44

10/25/05

09:00

N/A

02

02

1 gal bag

✓

THIS ROW FOR INCINERATOR SERVICES PERSONNEL ONLY! Y N Gal Added

* if different than 300 gal

RELINQUISHED BY

DATE

TIME (military)

RELINQUISHED TO

DATE

TIME (military)

COMMENTS

T-Roy

10/25/05

09:11

Butler

11

11

Received by

Date

Time (military)

Title
☒ Analyst ☐ Chemist

Special Instructions to Lab or Comments:

Cell Lot

10/25/05

09:15

YES

No

Sample Received within 15 minutes?

Yes

YES

NO

Was thermal preservation required?

Yes

NO

NO

Synata Crop Protection, Inc.
St. Gabriel Plant

RCRA LABORATORY CHAIN OF CUSTODY
Only the sample type per COC
(Multiple containers of the same sample are allowed)
Please complete shaded topics

SRL
Sample Receiving Log Number
(lab use only)

NAME

TITLE

☐ OPERATOR ☐ ENGINEER
☐ CHEMIST ☒ SUPERVISOR
☐ Other:

Please Print

Terry Roy

UNIT

E.T.

Cost Center

8173

Waste#

(IF AVAILABLE)

I, _____

T-Roy
(signature)

_____ have followed plant procedure L-2 to obtain a representative sample.

Circle the sampling device used in sampling: Coliwassa (Scoop) Thief Valve (tank recirc) Valve (tank no-recirc) Other: Batch # 50123-44

MATRIX

Aqueous
Liquid

Organic
Liquid

Solid

Sludge

Analysis Required: ☐ Characterization/Verification ☐ Compatibility
☐ PreIncineration ☒ Other: only health analysis

ANY SAMPLE HELD LONGER THAN 15 MINUTES BEFORE LAB DROP-OFF SHOULD BE KEPT ON ICE

SAMPLE DESCRIPTION (must match descr. on WDS) (Dike sludge, Aq. XYZ, etc.)	SAMPLE ID (trailer, tank, drum #, etc.)	DATE	TIME	Sample Information								
				Preserve		Glass Indicate size (oz.)	Plastic Indicate size (oz.)	Other Indicate size (oz.)	Check one			
				Used N/A if none	#				oz	Grab	Composite	
Rec'd II	Trailer # 44	10/25/05	09:35 hrs	N/A	#	oz	#	oz	1 gal. bag	oz	✓	
		11	hrs		#	oz	#	oz				

THIS ROW FOR INCINERATOR Rinsewater Added? GAL ADDED*

SERVICES PERSONNEL ONLY! Y N

* if different than 300 gal

RELINQUISHED BY	DATE	TIME (military)	RELINQUISHED TO	DATE	TIME (military)	COMMENTS
T-Roy	10/25/05	09:32 hrs		11	hrs	
	11	hrs		11	hrs	

Special Instructions to Lab or Comments:

Received by	Date	Time (military)	Title	Special Instructions to Lab or Comments:	
B. Cor	10/25/05	09:37 hrs	Analyst <input type="checkbox"/> Chemist		
Sample Received within 15 minutes?			YES No		
Was thermal preservation required?			Yes NO		
Transported cold, if required?			Yes NO		

INTERNAL (CHAIN OF CUSTODY)

General Sample

P.O. Box 1330
ST. GEORGE, LA 70776

LAB FAX:

SAMPLE NAME	SAMPLE LOCATION	DATE/TIME	# OF Samples	# OF Containers	Refrigerated? Y/N	GRAB/COMP.	SAMPLE SIZE	CONTAINER TYPE	ANALYSIS REQUESTED
RECAL composite Sample AWT Yearly.		10/25/05 0900/0925	1	1	N	Comp.	16 g.		Calcium Hydrogen Phosphate Free Chlorine Cyanogen Chloride (CNCl) Cyanate Iron Hydroxide Total Triazines (TCT) Calcium Hydroxide pH (50:50) Sodium Thiosulfate Calcium Sulfate Sodium Chloride
RELINQUISHED BY: (Print and Signature)		DATE: 10/25/05		RECEIVED BY:		NAME: E. R. J.		COMPANY: Applications Lab	
NAME: Bill Cox		TIME: 1034						TELEPHONE: (225) 752-2900	
Bill Cox									

SPECIAL NOTES TO RECEIVING LABORATORY:

Demeulenaere Robert USSG

From: Rager Ed USSG
Thursday, November 10, 2005 7:25 AM
Demeulenaere Robert USSG
Cc: Griffin Joe USSG
Subject: Year-End Recal Results

Follow Up Flag: Follow up
Flag Status: Red

Attachments: Year End Recal 2005.xls

Year-End Recal Results



Year End Recal
2005.xls (25 KB...

Ed Rager
Syngenta Crop Protection, Inc.
3905 Highway 75
St. Gabriel, LA 70776
Phone: (225) 642-1348; Fax: (225) 642-1675
Email: ed.rager@syngenta.com

Year End Recal II 2005

Component	State	Found	Specs
Calcium Carbonate	Dry		≥ 65 %
Calcium Chloride	Dry		≤ 3 %
Solids	As Is	41.5%	≥ 38 %
Calcium Sulfate	Dry	1.4%	< 25%
CaHPO4	Dry	0.8%	< 10%
Calcium Hydroxide	Dry	1.2%	< 5%
Iron Hydroxide	Dry	1.95%	< 2%
Sodium Chloride	Dry	0.1%	< 0.3%
TOC	As Is		< 3900ppm
pH	As Is	11.7	9-1 - 12.7
Cyanide	As Is		< 3ppm
TCT	As Is	< 5ppm	< 10ppm
Cyanate	As Is	< 10ppm	< 10ppm
CNCl	As Is	0.14ppm	< 1ppm
Free Chlorine	As Is	< 0.5ppm	< 6ppm
Na2S2O3	As Is	28ppm	≤ 150ppm

RECAL II - Release Analyses

SYNGENTA

SAMPLE ID: 498665

05290-10:00:58-RECAL_II

TAG#:

Batch: 501023-44

Sample:

Prod: RECAL_IIYR

Shift: MARIOM01

Date: 25-Oct-2005

Process Support Lab
St. Gabriel, LA

SOLIDS - %

Sample Weight (gms) 10
% Moisture by Sartorius 58.48
% Solids (100-%MO) 41.52
(Failure = <38.0 %)

CaCO₃ - % (Dry milled)

Titration calibrated? ☒ Yes ☐ No

pH 7.0 = 6.93
(6.9 - 7.1)

Slope = 0.976
(0.94 - 1.02)

N 1.0 HCl 0.9999

N 1.0 NaOH 1.0002

Exp. Date 7-30-06

Exp. Date 7-30-06

Sample Weight (1.2500 ± 0.05 gms)
CaCO₃ - % (from titration)

1.2510
76.08

1.2518
75.91

Difference in results % 0.12 (if ≥ 0.5 %, repeat tests)
Average of A & B - % 76.02 (enter in SM)
(Failure = <65.0 %)

CaCl - % (Dry milled)

N 0.10 AgNO₃ 0.1001

Exp. Date 1-30-07

Sample Weight (3.0000 ± 0.25 gms)
CaCl - % (from titration)

3.0220
0.39

3.0182
0.40

Difference in results % 0.01 (if ≥ 0.5 %, repeat tests)
Average of A & B - % 0.40 (enter in SM)
(Failure = >3.0 %)

Controlled Form

Z:\LAUREN\NPDES\RECALL II ANALYSIS\BENCHSHEET.DOC

NID: 498665

SAMPLE: RECAL_IYR

Prsrv: ☐

GRAB ☐

COMPOSITE ☐

Collection By: _____

DATE: ____/____/____

TIME: ____:____:____

RECAL II - Failure Analyses

Date: 10/25/05

Batch # (Code #) _____

Tech: FBA

SM Sample ID # _____

TOC - ppm (Wet cake)

Sample Weight (4.000 +/- 0.2 gms) 4.06

Adjusted pH of aqueous sample (1.5 - 2.0) 1.73

TOC - ppm in aqueous sample (Shimadzu) 13.5

$$\text{TOC - ppm} = \frac{\text{TOC}(\text{ppm} - \text{aq}) \times 100}{\text{Sample Weight}(\text{gms})} = \frac{372.5}{10} = 37.25$$

(Failure = ≥ 3900 ppm)

Cyanide - ppm (Wet cake)

Sample Weight (10.000 \pm 0.5 gms) 10.050
(dilute to 200 mls total sample volume)

Chlorine present? ☐ Yes ☒ No

If Y - # mls 0.01 N $\text{Na}_2\text{S}_2\text{O}_3$ added until
KI-starch paper is not purple 1.5

If N - add only 1-2 mls 0.01 N $\text{Na}_2\text{S}_2\text{O}_3$

F-CN - ppm in aqueous sample (SOP 1006) 0.08

$$\text{Cyanide - ppm} = \frac{F - \text{CN}(\text{ppm} - \text{aq}) \times 200}{\text{Sample Weight}(\text{gms})} = \frac{1.59}{10} = 0.159$$

(Failure = ≥ 3.0 ppm)

ANALYTICAL REPORT

Job Number: 700-7010-1

Job Description: Syngenta Annual Re-Certification RECAL A

For:

Syngenta Crop Protection, Inc.
PO BOX 11
St. Gabriel, LA 70776

Attention: Mr. Robert DeMeulenaere

Jesse L. Smith 12.14.05

Jesse Smith
Project Manager II
jsmith@stl-inc.com
12/14/2005

METHOD SUMMARY

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Volatile Organic Compounds by GC/MS	STL-MOB	SW846 8260B	
Toxicity Characteristic Leaching Procedure (ZHE)	STL-MOB		SW846 1311
Purge-and-Trap	STL-MOB		SW846 5030B
Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	STL-MOB	SW846 8270C	
Toxicity Characteristic Leaching Procedure	STL-MOB		SW846 1311
Continuous Liquid-Liquid Extraction	STL-MOB		SW846 3520C
Organochlorine Pesticides by Gas Chromatography	STL-MOB	SW846 8081A	
Toxicity Characteristic Leaching Procedure	STL-MOB		SW846 1311
Continuous Liquid-Liquid Extraction	STL-MOB		SW846 3520C
Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzoylation Derivat	STL-MOB	SW846 8151A	
Toxicity Characteristic Leaching Procedure	STL-MOB		SW846 1311
Chlorinated Herbicides by GC - Aqueous Prep	STL-MOB		SW846 8151A
Inductively Coupled Plasma - Atomic Emission Spectrometry	STL-MOB	SW846 6010B	
Toxicity Characteristic Leaching Procedure	STL-MOB		SW846 1311
Acid Digestion of Aqueous Samples and Extracts	STL-MOB		SW846 3010A
Acid Digestion of Sediments, Sludges, and Soils	STL-MOB		SW846 3050B
Mercury in Liquid Waste (Manual Cold Vapor Technique)	STL-MOB	SW846 7470A	
Toxicity Characteristic Leaching Procedure (Hg)	STL-MOB		SW846 1311
Mercury in Liquid Waste (Manual Cold Vapor)	STL-MOB		SW846 7470A
Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)	STL-MOB	SW846 7471A	
Mercury in Solid or Semi-Solid Waste (Manual)	STL-MOB		SW846 7471A
Chromium, Hexavalent (Colorimetric)	STL-MOB	SM18 3500 CR D	
Alkaline Digestion for CrVI on Solids	STL-MOB		SW846 3060A
Nitrogen, Total Kjeldahl (Colorimetric, Semi-Automated Block Digester, AAI)	STL-MOB	MCAWW 351.2	
Nitrogen, Total Kjeldahl (Colorimetric,	STL-MOB		MCAWW 351.2
Total and Amenable Cyanide (Automated Colorimetric, with Off-Line Distillation)	STL-SAV	SW846 9012A	
Total and Amenable Cyanide (Auto. Colorimetric)	STL-SAV		SW846 9012A
Percent Moisture	STL-SAV	EPA 160.3	

LAB REFERENCES:

STL-SAV = STL-Savannah

STL-MOB = STL-Mobile

METHOD SUMMARY

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

METHOD REFERENCES:

EPA - US Environmental Protection Agency

MCAWW - "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM18 - "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1988 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Method	Analyst	Analyst ID
SW846 8260B	Var, Kerry	KBV
SW846 8270C	Huynh, HoangNam	HH
SW846 8081A	Nguyen, Khanh	KN
SW846 8151A	Bundy, Maria	MB
SW846 6010B	Bowen, Becky	RJB
SW846 6010B	Richards, Gwen M	GMR
SW846 6010B	Ta, Mary	MT
SW846 7470A	Bruce, Timothy R	TRB
SW846 7471A	Dees, Kelli	KD
EPA 160.3	Edwards, Michelle P	MPE
EPA 160.3	Kan, Bill	BK
SM18 3500 CR D	Tran, Luther	LT
CAWW 351.2	Bradley, Katie	KB
W846 9012A	Riley, Lisa	LR

SAMPLE SUMMARY

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
700-7010-1	Yearly Recal Sample	Solid	10/25/2005 1025	10/27/2005 1120

SAMPLE RESULTS

Analytical Data

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Client Sample ID: Yearly Recal Sample

Lab Sample ID: 700-7010-1

Client Matrix: Solid

Date Sampled: 10/25/2005 1025

Date Received: 10/27/2005 1120

8260B Volatile Organic Compounds by GC/MS -TCLP

Method: 8260B
Preparation: 5030B
Dilution: 4.0
Date Analyzed: 10/28/2005 1435
Date Prepared: 10/28/2005 1435
Date Leached: 10/27/2005 1550

Analysis Batch: 700-13231

Instrument ID: VMG5973

Lab File ID: G102809.D

Tclp Batch: 700-13116

Initial Weight/Volume: 5 mL

Final Weight/Volume: 5 mL

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	RL
Benzene		<0.020		0.020
Carbon tetrachloride		<0.020		0.020
Chloroform		<0.020		0.020
1,2-Dichloroethane		<0.020		0.020
Methyl Ethyl Ketone		<0.10		0.10
Tetrachloroethene		<0.020		0.020
Trichloroethene		<0.020		0.020
Vinyl chloride		<0.0080		0.0080
1,1-Dichloroethene		<0.020		0.020
Chlorobenzene		<0.020		0.020

Surrogate	%Rec	Acceptance Limits
Dibromofluoromethane	102	66 - 125
Toluene-d8	100	77 - 116
4-Bromofluorobenzene	92	70 - 130

Analytical Data

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Client Sample ID: Yearly Recal Sample

Lab Sample ID: 700-7010-1

Client Matrix: Solid

Date Sampled: 10/25/2005 1025

Date Received: 10/27/2005 1120

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) -TCLP

Method: 8270C

Analysis Batch: 700-13488

Instrument ID: SMA5972

Preparation: 3520C

Prep Batch: 700-13280

Lab File ID: A110207.D

Dilution: 5.0

Tdp Batch: 700-13115

Initial Weight/Volume: 200 mL

Date Analyzed: 11/02/2005 1428

Final Weight/Volume: 1.0 mL

Date Prepared: 11/01/2005 0750

Injection Volume:

Date Leached: 10/27/2005 1614

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	RL
1,4-Dichlorobenzene		<0.050		0.050
2,4,5-Trichlorophenol		<0.050		0.050
2,4-Dinitrotoluene		<0.050		0.050
2-Methylphenol		<0.050		0.050
3 & 4 Methylphenol		<0.050		0.050
Hexachlorobenzene		<0.050		0.050
Hexachlorobutadiene		<0.050		0.050
Hexachloroethane		<0.050		0.050
Nitrobenzene		<0.25		0.25
Pentachlorophenol		<0.25		0.25
Pyridine		<0.050		0.050
2,4,6-Trichlorophenol				
Surrogate		%Rec		Acceptance Limits
2,4,6-Tribromophenol		12		5.0 - 108
2-Fluorobiphenyl		88		31 - 118
2-Fluorophenol		62		10 - 128
Nitrobenzene-d5		83		35 - 122
Phenol-d5		38		29 - 113
Terphenyl-d14		118		37 - 149

Analytical Data

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Client Sample ID: Yearly Recal Sample

Lab Sample ID: 700-7010-1

Client Matrix: Solid

Date Sampled: 10/25/2005 1025

Date Received: 10/27/2005 1120

8081A Organochlorine Pesticides by Gas Chromatography -TCLP

Method: 8081A
Preparation: 3520C
Dilution: 1.0
Date Analyzed: 11/01/2005 1642
Date Prepared: 10/31/2005 0900
Date Leached: 10/27/2005 1614

Analysis Batch: 700-13416
Prep Batch: 700-13218
Tclp Batch: 700-13115

Instrument ID: MSGY
Lab File ID: Y110117.D
Initial Weight/Volume: 20 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	RL
Chlordane (technical)		<0.025		0.025
Endrin		<0.0050		0.0050
gamma-BHC (Lindane)		<0.0025		0.0025
Heptachlor		<0.0025		0.0025
Heptachlor epoxide		<0.0025		0.0025
Methoxychlor		<0.025		0.025
Toxaphene		<0.25		0.25
Surrogate		%Rec		Acceptance Limits
DCB Decachlorobiphenyl		77		30 - 150
Tetrachloro-m-xylene		69		30 - 150

Analytical Data

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Client Sample ID: Yearly Recal Sample
Lab Sample ID: 700-7010-1
Client Matrix: Solid

Date Sampled: 10/25/2005 1025
Date Received: 10/27/2005 1120

8151A Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzoylation Derivat -TCLP

Method: 8151A
Preparation: 8151A
Dilution: 1.0
Date Analyzed: 11/03/2005 0311
Date Prepared: 10/31/2005 1000
Date Leached: 10/27/2005 1614

Analysis Batch: 700-13470
Prep Batch: 700-13295
Tclp Batch: 700-13115

Instrument ID: SGZ
Lab File ID: Z110235.D
Initial Weight/Volume: 10 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	RL
2,4-D		<0.025		0.025
Silvex (2,4,5-TP)		<0.025		0.025
Surrogate		%Rec		Acceptance Limits
2,4-Dichlorophenylacetic acid		72		33 - 120

Analytical Data
Job Number: 700-7010-1
Client: Syngenta Crop Protection, Inc.
Client Sample ID: Yearly Recal Sample
Lab Sample ID: 700-7010-1
Client Matrix: Solid
Date Sampled: 10/25/2005 1025
Date Received: 10/27/2005 1120
6010B Inductively Coupled Plasma - Atomic Emission Spectrometry
Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 10/31/2005 1555
Date Prepared: 10/28/2005 0925
Analysis Batch: 700-13285
Prep Batch: 700-13147
Instrument ID: TJA ICP TRACE
Lab File ID: OCT3105
Initial Weight/Volume: 0.55 g
Final Weight/Volume: 50.0 mL

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Arsenic		9.2		0.91
Barium		110		0.91
Cadmium		2.4		0.45
Chromium		25		0.91
Copper		16		1.8
Lead		5.2		0.45
Nickel		27		3.6
Selenium		<0.23		0.23
Silver		<0.91		0.91

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 11/09/2005 0942
Date Prepared: 10/28/2005 0925
Analysis Batch: 700-13637
Prep Batch: 700-13147
Instrument ID: TJA ICP TRACE
Lab File ID: N/A
Initial Weight/Volume: 0.55 g
Final Weight/Volume: 50.0 mL

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Zinc		130		1.8

Method: 6010B
Preparation: 3050B
Dilution: 1.0
Date Analyzed: 12/13/2005 1742
Date Prepared: 10/28/2005 0925
Analysis Batch: 700-15069
Prep Batch: 700-13147
Instrument ID: TJA ICP TRACE
Lab File ID: DEC1305
Initial Weight/Volume: 0.55 g
Final Weight/Volume: 50.0 mL

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Antimony		<1.8		1.8
Beryllium		<0.36		0.36
Iron		<4.5		4.5
Manganese		<0.91		0.91
Thallium		<0.91		0.91

Analytical Data

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Client Sample ID: Yearly Recal Sample

Lab Sample ID: 700-7010-1
Client Matrix: SolidDate Sampled: 10/25/2005 1025
Date Received: 10/27/2005 1120

6010B Inductively Coupled Plasma - Atomic Emission Spectrometry-TCLP

Method:	6010B	Analysis Batch: 700-13375	Instrument ID:	TJA ICP TRACE
Preparation:	3010A	Prep Batch: 700-13145	Lab File ID:	NOV0205
Dilution:	1.0	Tcp Batch: 700-13115	Initial Weight/Volume:	5.0 mL
Date Analyzed:	11/02/2005 0938		Final Weight/Volume:	25.0 mL
Date Prepared:	10/28/2005 0949			
Date Leached:	10/27/2005 1614			

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	RL
Arsenic		<1.0		1.0
Barium		<1.0		1.0
Cadmium		<0.50		0.50
Chromium		<1.0		1.0
Lead		<0.50		0.50
Selenium		<1.0		1.0
Silver		<1.0		1.0

Method:	6010B	Analysis Batch: 700-15069	Instrument ID:	TJA ICP TRACE
Preparation:	3010A	Prep Batch: 700-13145	Lab File ID:	DEC1305
Dilution:	1.0	Tcp Batch: 700-13115	Initial Weight/Volume:	5.0 mL
Date Analyzed:	12/13/2005 1724		Final Weight/Volume:	25.0 mL
Date Prepared:	10/28/2005 0949			
Date Leached:	10/27/2005 1614			

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	RL
Antimony		<0.40		0.40
Beryllium		<0.10		0.10
Nickel		<0.80		0.80
Thallium		<0.20		0.20

7470A Mercury in Liquid Waste (Manual Cold Vapor Technique)-TCLP

Method:	7470A	Analysis Batch: 700-13480	Instrument ID:	LEEMAN PS200
Preparation:	7470A	Prep Batch: 700-13443	Lab File ID:	N/A
Dilution:	1.0	Tcp Batch: 700-13115	Initial Weight/Volume:	5.0 mL
Date Analyzed:	11/04/2005 1150		Final Weight/Volume:	40.0 mL
Date Prepared:	11/03/2005 1235			
Date Leached:	10/27/2005 1614			

Analyte	DryWt Corrected: N	Result (mg/L)	Qualifier	RL
Mercury		<0.020		0.020

Analytical Data

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Client Sample ID: Yearly Recal Sample

Lab Sample ID: 700-7010-1
Client Matrix: Solid

Date Sampled: 10/25/2005 1025
Date Received: 10/27/2005 1120

7471A Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)

Method:	7471A	Analysis Batch:	700-13236	Instrument ID:	LEEMAN PS200
Preparation:	7471A	Prep Batch:	700-13203	Lab File ID:	N/A
Dilution:	1.0			Initial Weight/Volume:	0.52 g
Date Analyzed:	10/31/2005 1156			Final Weight/Volume:	40 mL
Date Prepared:	10/28/2005 1430				

Analyte	DryWt Corrected: N	Result (mg/Kg)	Qualifier	RL
Mercury		0.074		0.015

Client: Syngenta Crop Protection, Inc.

General Chemistry

Client Sample ID: Yearly Recal Sample

Lab Sample ID: 700-7010-1
Client Matrix: Solid

Date Sampled: 10/25/2005 1025
Date Received: 10/27/2005 1120

Analyte	Result	Qual	Units	RL	Dil	Method
Chromium, hexavalent	<3.4		mg/Kg	3.4	1.0	3500 CR D
						DryWt Corrected: N
	Any Batch: 700-14187	Date Analyzed	11/01/2005 1138			
	Prep Batch: 700-13262	Date Prepared:	10/31/2005 1607			
Nitrogen, Kjeldahl	960		mg/Kg	49	1.0	351.2
						DryWt Corrected: N
	Any Batch: 700-13510	Date Analyzed	11/04/2005 1543			
	Prep Batch: 700-13508	Date Prepared:	11/02/2005 1030			
Cyanide, Total	2.7		mg/Kg	0.50	1.0	9012A
						DryWt Corrected: N
	Any Batch: 680-28259	Date Analyzed	11/10/2005 0849			
	Prep Batch: 680-28256	Date Prepared:	11/09/2005 0500			
Percent Moisture	58		%	0.10	1.0	160.3
	Any Batch: 700-13388	Date Analyzed	11/02/2005 1410			
Percent Moisture	58		%	1.0	1.0	160.3
	Any Batch: 680-29117	Date Analyzed	11/23/2005 1122			
Percent Solids	42		%	0.10	1.0	160.3
	Any Batch: 700-13388	Date Analyzed	11/02/2005 1410			
Percent Solids	42		%	1.0	1.0	160.3
	Any Batch: 680-29117	Date Analyzed	11/23/2005 1122			

DATA REPORTING QUALIFIERS

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Lab Section	Qualifier	Description
Metals		LCS, LCSD, MS, MSD, MD, or Surrogate exceeds the control limits

QUALITY CONTROL RESULTS

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
GC/MS VOA				
Analysis Batch: 700-13231				
LCS 700-13231/1	Lab Control Spike	Solid	8260B	
LCSD 700-13231/2	Lab Control Spike Duplicate	Solid	8260B	
MB 700-13231/3	Method Blank	Solid	8260B	
700-7010-1	Yearly Recal Sample	Solid	8260B	
Prep Batch: 700-13116				
700-7010-1	Yearly Recal Sample	Solid	1311	
GC/MS Semi VOA				
Prep Batch: 700-13280				
LCS 700-13280/2-A	Lab Control Spike	Solid	3520C	
LCSD 700-13280/3-A	Lab Control Spike Duplicate	Solid	3520C	
MB 700-13280/1-A	Method Blank	Solid	3520C	
Prep Batch: 700-13116				
700-7010-1	Yearly Recal Sample	Solid	1311	
Prep Batch: 700-13280				
700-7010-1	Yearly Recal Sample	Solid	3520C	700-13115
Analysis Batch: 700-13488				
LCS 700-13280/2-A	Lab Control Spike	Solid	8270C	700-13280
LCSD 700-13280/3-A	Lab Control Spike Duplicate	Solid	8270C	700-13280
MB 700-13280/1-A	Method Blank	Solid	8270C	700-13280
700-7010-1	Yearly Recal Sample	Solid	8270C	700-13280

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
GC Semi VOA				
Prep Batch: 700-13218				
LCS 700-13218/2-A	Lab Control Spike	Solid	3520C	
LCSD 700-13218/3-A	Lab Control Spike Duplicate	Solid	3520C	
MB 700-13218/1-A	Method Blank	Solid	3520C	
Prep Batch: 700-13295				
LCS 700-13295/2-A	Lab Control Spike	Solid	8151A	
LCSD 700-13295/3-A	Lab Control Spike Duplicate	Solid	8151A	
MB 700-13295/1-A	Method Blank	Solid	8151A	
Prep Batch: 700-13115				
700-7010-1	Yearly Recal Sample	Solid	1311	
Prep Batch: 700-13218				
700-7010-1	Yearly Recal Sample	Solid	3520C	700-13115
Prep Batch: 700-13295				
700-7010-1	Yearly Recal Sample	Solid	8151A	700-13115
Analysis Batch: 700-13416				
LCS 700-13218/2-A	Lab Control Spike	Solid	8081A	700-13218
LCSD 700-13218/3-A	Lab Control Spike Duplicate	Solid	8081A	700-13218
MB 700-13218/1-A	Method Blank	Solid	8081A	700-13218
700-7010-1	Yearly Recal Sample	Solid	8081A	700-13218
Analysis Batch: 700-13470				
LCS 700-13295/2-A	Lab Control Spike	Solid	8151A	700-13295
LCSD 700-13295/3-A	Lab Control Spike Duplicate	Solid	8151A	700-13295
MB 700-13295/1-A	Method Blank	Solid	8151A	700-13295
700-7010-1	Yearly Recal Sample	Solid	8151A	700-13295

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
Metals				
Prep Batch: 700-13145 LCS 700-13145/2-A MB 700-13145/1-A	Lab Control Spike Method Blank	Solid Solid	3010A 3010A	
Prep Batch: 700-13147 LCS 700-13147/15-A LCSD 700-13147/16-A MB 700-13147/14-A 700-7010-1 700-7010-1MS 700-7010-1MSD	Lab Control Spike Lab Control Spike Duplicate Method Blank Yearly Recal Sample Matrix Spike Matrix Spike Duplicate	Solid Solid Solid Solid Solid Solid	3050B 3050B 3050B 3050B 3050B 3050B	
Prep Batch: 700-13203 LCS 700-13203/2-A LCSD 700-13203/3-A MB 700-13203/1-A 700-7010-1	Lab Control Spike Lab Control Spike Duplicate Method Blank Yearly Recal Sample	Solid Solid Solid Solid	7471A 7471A 7471A 7471A	
Prep Batch: 700-13443 LCS 700-13443/2-A LCSD 700-13443/3-A MB 700-13443/1-A 700-7010-1MS 700-7010-1MSD	Lab Control Spike Lab Control Spike Duplicate Method Blank Matrix Spike Matrix Spike Duplicate	Solid Solid Solid Solid Solid	7470A 7470A 7470A 7470A 7470A	
Prep Batch: 700-13115 700-7010-1	Yearly Recal Sample	Solid	1311	
Prep Batch: 700-13145 700-7010-1	Yearly Recal Sample	Solid	3010A	700-13115
Prep Batch: 700-13443 700-7010-1	Yearly Recal Sample	Solid	7470A	700-13115
Analysis Batch: 700-13375 700-7010-1	Yearly Recal Sample	Solid	6010B	700-13145
Analysis Batch: 700-15069 LCS 700-13145/2-A MB 700-13145/1-A 700-7010-1	Lab Control Spike Method Blank Yearly Recal Sample	Solid Solid Solid	6010B 6010B 6010B	700-13145 700-13145 700-13145
Analysis Batch: 700-13285 LCS 700-13147/15-A LCSD 700-13147/16-A MB 700-13147/14-A 700-7010-1 700-7010-1MS 700-7010-1MSD	Lab Control Spike Lab Control Spike Duplicate Method Blank Yearly Recal Sample Matrix Spike Matrix Spike Duplicate	Solid Solid Solid Solid Solid Solid	6010B 6010B 6010B 6010B 6010B 6010B	700-13147 700-13147 700-13147 700-13147 700-13147 700-13147

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
Metals				
Analysis Batch:700-13637 700-7010-1	Yearly Recal Sample	Solid	6010B	700-13147
Analysis Batch:700-15069 LCS 700-13147/15-A MB 700-13147/14-A 700-7010-1	Lab Control Spike Method Blank Yearly Recal Sample	Solid Solid Solid	6010B 6010B 6010B	700-13147 700-13147 700-13147
Analysis Batch:700-13236 LCS 700-13203/2-A LCSD 700-13203/3-A MB 700-13203/1-A 700-7010-1	Lab Control Spike Lab Control Spike Duplicate Method Blank Yearly Recal Sample	Solid Solid Solid Solid	7471A 7471A 7471A 7471A	700-13203 700-13203 700-13203 700-13203
Analysis Batch:700-13480 LCS 700-13443/2-A LCSD 700-13443/3-A MB 700-13443/1-A 700-7010-1 700-7010-1MS 700-7010-1MSD	Lab Control Spike Lab Control Spike Duplicate Method Blank Yearly Recal Sample Matrix Spike Matrix Spike Duplicate	Solid Solid Solid Solid Solid Solid	7470A 7470A 7470A 7470A 7470A 7470A	700-13443 700-13443 700-13443 700-13443 700-13443 700-13443

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

QC Association Summary

Lab Sample ID	Client Sample ID	Client Matrix	Method	Prep Batch
General Chemistry				
Prep Batch: 700-13262 700-7010-1	Yearly Recal Sample	Solid	3060A	
Analysis Batch: 700-13388 700-7010-1	Yearly Recal Sample	Solid	160.3	
Prep Batch: 700-13508 LCS 700-13508/2-A LCSD 700-13508/3-A MB 700-13508/1-A 700-7010-1	Lab Control Spike Lab Control Spike Duplicate Method Blank Yearly Recal Sample	Solid Solid Solid Solid	351.2 351.2 351.2 351.2	
Analysis Batch: 700-14187 LCS 700-14187/2 LCSD 700-14187/3 MB 700-14187/1	Lab Control Spike Lab Control Spike Duplicate Method Blank	Solid Solid Solid	3500 CR D 3500 CR D 3500 CR D	
Prep Batch: 680-28256 LCS 680-28256/2-A LCSD 680-28256/3-A MB 680-28256/1-A 700-7010-1 700-7102-C-1-B MS 700-7102-C-1-C MSD	Lab Control Spike Lab Control Spike Duplicate Method Blank Yearly Recal Sample Matrix Spike Matrix Spike Duplicate	Solid Solid Solid Solid Solid Solid	9012A 9012A 9012A 9012A 9012A 9012A	
Analysis Batch: 680-29117 700-7010-1	Yearly Recal Sample	Solid	160.3	
Analysis Batch: 700-14187 700-7010-1	Yearly Recal Sample	Solid	3500 CR D	700-13262
Analysis Batch: 700-13510 LCS 700-13508/2-A LCSD 700-13508/3-A MB 700-13508/1-A 700-7010-1	Lab Control Spike Lab Control Spike Duplicate Method Blank Yearly Recal Sample	Solid Solid Solid Solid	351.2 351.2 351.2 351.2	700-13508 700-13508 700-13508 700-13508
Analysis Batch: 680-28256 LCS 680-28256/2-A LCSD 680-28256/3-A MB 680-28256/1-A 700-7010-1 700-7102-C-1-B MS 700-7102-C-1-C MSD	Lab Control Spike Lab Control Spike Duplicate Method Blank Yearly Recal Sample Matrix Spike Matrix Spike Duplicate	Solid Solid Solid Solid Solid Solid	9012A 9012A 9012A 9012A 9012A 9012A	680-28256 680-28256 680-28256 680-28256 680-28256 680-28256

Quality Control Results

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Surrogate Recovery Report

8260B Volatile Organic Compounds by GC/MS

Client Matrix: Solid TCLP

Lab Sample ID	Client Sample	(BFB) (%Rec)	(DBFM) (%Rec)	(TOL) (%Rec)
700-7010-1	Yearly Recal Sample	92	102	100
LCS 700-13231/1	LCS	101	110	105
LCSD 700-13231/2	LCSD	102	112	108
MB 700-13231/3	MB	99	108	106

Surrogate	Acceptance Limits
(BFB) 4-Bromofluorobenzene	70 - 130
(DBFM) Dibromofluoromethane	66 - 125
(TOL) Toluene-d8	77 - 116

Quality Control Results

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Surrogate Recovery Report

8270C Semivolatile Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

Client Matrix: Solid TCLP

Lab Sample ID	Client Sample	(2FP) (%Rec)	(FBP) (%Rec)	(NBZ) (%Rec)	(PHL) (%Rec)	(TBP) (%Rec)	(TPH) (%Rec)
700-7010-1	Yearly Recal Sample	62	86	83	38	12	118
LCS 700-13280/2-A	LCS	66	92	90	67	88	109
LCSD 700-13280/3-A	LCSD	70	94	90	68	91	115
MB 700-13280/1-A	MB	55	85	75	44	34	84

Surrogate	Acceptance Limits
(2FP) 2-Fluorophenol	10 - 128
(FBP) 2-Fluorobiphenyl	31 - 118
(NBZ) Nitrobenzene-d5	35 - 122
(PHL) Phenol-d5	29 - 113
(TBP) 2,4,6-Tribromophenol	5.0 - 106
(TPH) Terphenyl-d14	37 - 149

Quality Control Results

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Surrogate Recovery Report

8081A Organochlorine Pesticides by Gas Chromatography

Client Matrix: Solid TCLP

<u>Lab Sample ID</u>	<u>Client Sample</u>	<u>(DCB 1) (%Rec)</u>	<u>(TCX 1) (%Rec)</u>
700-7010-1	Yearly Recal Sample	77	69
LCS 700-13218/2-A	LCS	70	74
LCSD 700-13218/3-A	LCSD	62	76
MB 700-13218/1-A	MB	56	70

<u>Surrogate</u>	<u>Acceptance Limits</u>
(DCB 1) DCB Decachlorobiphenyl	30 - 150
(TCX 1) Tetrachloro-m-xylene	30 - 150

Quality Control Results

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Surrogate Recovery Report

8151A Chlorinated Herbicides by GC Using Methylation or Pentafluorobenzoylation Derivat

Client Matrix: Solid TCLP

Lab Sample ID	Client Sample	(DCPA) (%Rec)
700-7010-1	Yearly Recal Sample	72
LCS 700-13295/2-A	LCS	74
LCSD 700-13295/3-A	LCSD	69
MB 700-13295/1-A	MB	66

Surrogate	Acceptance Limits
(DCPA) 2,4-Dichlorophenylacetic acid	33 - 120

Quality Control Results

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Method Blank - Batch: 700-13231

Method: 8260B
Preparation: 5030B
TCLP

Lab Sample ID: MB 700-13231/3
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/28/2005 1231
Date Prepared: 10/28/2005 1231

Analysis Batch: 700-13231
Prep Batch: N/A
Units: mg/L

Instrument ID: VMG5973
Lab File ID: G102805.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 g

Analyte	Result	Qual	RL
Benzene	<0.0050		0.0050
Carbon tetrachloride	<0.0050		0.0050
Chloroform	<0.0050		0.0050
1,2-Dichloroethane	<0.0050		0.025
Methyl Ethyl Ketone	<0.0050		0.0050
Tetrachloroethene	<0.0050		0.0050
Trichloroethene	<0.0020		0.0020
Vinyl chloride	<0.0050		0.0050
1,1-Dichloroethene	<0.0050		0.0050
Chlorobenzene			
		% Rec	Acceptance Limits
Surrogate		108	68 - 125
Bromofluoromethane		106	77 - 116
Toluene-d8		99	70 - 130
4-Bromofluorobenzene			

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Laboratory Control/ Laboratory Control Duplicate Recovery Report - Batch: 700-13231

Method: 8260B
Preparation: 5030B
TCLP

LCS Lab Sample ID: LCS 700-13231/1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/28/2005 1129
Date Prepared: 10/28/2005 1129

Analysis Batch: 700-13231
Prep Batch: N/A
Units: mg/L

Instrument ID: VMG5973
Lab File ID: G102803.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 g

LCSD Lab Sample ID: LCSD 700-13231/2
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/28/2005 1200
Date Prepared: 10/28/2005 1200

Analysis Batch: 700-13231
Prep Batch: N/A
Units: mg/L

Instrument ID: VMG5973
Lab File ID: G102804.D
Initial Weight/Volume: 5 mL
Final Weight/Volume: 5 g

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Benzene	101	98	68 - 135	3	37		
Trichloroethene	108	104	67 - 132	3	35		
Chlorobenzene	115	108	71 - 132	6	22		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
Dibromofluoromethane	110		112		66 - 125		
Toluene-d8	105		108		77 - 118		
4-Bromofluorobenzene	101		102		70 - 130		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Method Blank - Batch: 700-13280

Lab Sample ID: MB 700-13280/1-A
Client Matrix: Solid
Dilution: 5.0
Date Analyzed: 11/02/2005 1241
Date Prepared: 11/01/2005 0750

Analysis Batch: 700-13488
Prep Batch: 700-13280
Units: mg/L

Method: 8270C
Preparation: 3520C
TCLP

Instrument ID: SMA5972
Lab File ID: A110204.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1.0 mL
Injection Volume:

Analyte	Result	Qual	RL
1,4-Dichlorobenzene	<0.010		0.010
2,4,5-Trichlorophenol	<0.010		0.010
2,4-Dinitrotoluene	<0.010		0.010
2-Methylphenol	<0.010		0.010
3 & 4 Methylphenol	<0.010		0.010
Hexachlorobenzene	<0.010		0.010
Hexachlorobutadiene	<0.010		0.010
Hexachloroethane	<0.010		0.010
Nitrobenzene	<0.050		0.050
Pentachlorophenol	<0.050		0.050
Pyridine	<0.010		0.010
2,4,6-Trichlorophenol	<0.010		0.010
Surrogate	% Rec	Acceptance Limits	
2,4,6-Tribromophenol	34	5.0 - 106	
2-Fluorobiphenyl	85	31 - 118	
2-Fluorophenol	55	10 - 128	
Nitrobenzene-d5	75	35 - 122	
Phenol-d5	44	29 - 113	
Terphenyl-d14	84	37 - 149	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

**Laboratory Control/
Laboratory Control Duplicate Recovery Report - Batch: 700-13280**
**Method: 8270C
Preparation: 3520C
TCLP**
LCS Lab Sample ID: LCS 700-13280/2-A
 Client Matrix: Solid
 Dilution: 1.0
 Date Analyzed: 11/02/2005 1317
 Date Prepared: 11/01/2005 0750

 Analysis Batch: 700-13488
 Prep Batch: 700-13280
 Units: mg/L

 Instrument ID: SMA5972
 Lab File ID: A110205.D
 Initial Weight/Volume: 1000 mL
 Final Weight/Volume: 1.0 mL
 Injection Volume:

LCSD Lab Sample ID: LCSD 700-13280/3-A
 Client Matrix: Solid
 Dilution: 1.0
 Date Analyzed: 11/02/2005 1352
 Date Prepared: 11/01/2005 0750

 Analysis Batch: 700-13488
 Prep Batch: 700-13280
 Units: mg/L

 Instrument ID: SMA5972
 Lab File ID: A110206.D
 Initial Weight/Volume: 1000 mL
 Final Weight/Volume: 1.0 mL
 Injection Volume:

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
1,4-Dichlorobenzene	75	79	30 - 95	5	31		
2,4-Dinitrotoluene	98	99	36 - 129	1	32		
2,4,6-Trinitrochlorophenol	49	52	34 - 133	7	33		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
2,4,6-Tribromophenol	88		91		5.0 - 106		
2-Fluorobiphenyl	92		94		31 - 118		
2-Fluorophenol	66		70		10 - 128		
Nitrobenzene-d5	90		90		35 - 122		
Phenol-d5	67		68		29 - 113		
Terphenyl-d14	109		115		37 - 149		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Method Blank - Batch: 700-13218

Lab Sample ID: MB 700-13218/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/02/2005 0328
Date Prepared: 10/31/2005 0900

Analysis Batch: 700-13416
Prep Batch: 700-13218
Units: mg/L

Method: 8081A
Preparation: 3520C
TCLP

Instrument ID: MSGY
Lab File ID: Y110138tdp.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result	Qual	RL
Chlordane (technical)	<0.00050		0.00050
Endrin	<0.00010		0.00010
gamma-BHC (Lindane)	<0.000050		0.000050
Heptachlor	<0.000050		0.000050
Heptachlor epoxide	<0.000050		0.000050
Methoxychlor	<0.00050		0.00050
Toxaphene	<0.0050		0.0050
Surrogate	% Rec	Acceptance Limits	
DCB Decachlorobiphenyl	56	30 - 150	
Tetrachloro-m-xylene	70	30 - 150	

Laboratory Control/
Laboratory Control Duplicate Recovery Report - Batch: 700-13218

Method: 8081A
Preparation: 3520C
TCLP

LCS Lab Sample ID: LCS 700-13218/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/02/2005 0357
Date Prepared: 10/31/2005 0900

Analysis Batch: 700-13416
Prep Batch: 700-13218
Units: mg/L

Instrument ID: MSGY
Lab File ID: Y110139tdp.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 700-13218/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/02/2005 0428
Date Prepared: 10/31/2005 0900

Analysis Batch: 700-13416
Prep Batch: 700-13218
Units: mg/L

Instrument ID: MSGY
Lab File ID: Y110140tdp.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
DCB Decachlorobiphenyl	70	62	30 - 150
Tetrachloro-m-xylene	74	76	30 - 150

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Method Blank - Batch: 700-13295

Lab Sample ID: MB 700-13295/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/03/2005 0209
Date Prepared: 10/31/2005 1000

Analysis Batch: 700-13470
Prep Batch: 700-13295
Units: mg/L

Method: 8151A
Preparation: 8151A
TCLP

Instrument ID: SGZ
Lab File ID: Z110233.D
Initial Weight/Volume: 500 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result	Qual	RL
2,4-D	<0.00050		0.00050
Silvex (2,4,5-TP)	<0.00050		0.00050
Surrogate	% Rec	Acceptance Limits	
2,4-Dichlorophenylacetic acid	66	33 - 120	

Laboratory Control/
Laboratory Control Duplicate Recovery Report - Batch: 700-13295

Method: 8151A
Preparation: 8151A
TCLP

CS Lab Sample ID: LCS 700-13295/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/03/2005 0108
Date Prepared: 10/31/2005 1000

Analysis Batch: 700-13470
Prep Batch: 700-13295
Units: mg/L

Instrument ID: SGZ
Lab File ID: Z110231.D
Initial Weight/Volume: 500 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 700-13295/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/03/2005 0139
Date Prepared: 10/31/2005 1000

Analysis Batch: 700-13470
Prep Batch: 700-13295
Units: mg/L

Instrument ID: SGZ
Lab File ID: Z110232.D
Initial Weight/Volume: 500 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
2,4-Dichlorophenylacetic acid	74	69	33 - 120

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Method Blank - Batch: 700-13145

Lab Sample ID: MB 700-13145/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 12/13/2005 1711
Date Prepared: 10/28/2005 0949

Analysis Batch: 700-15069
Prep Batch: 700-13145
Units: mg/L

Method: 6010B
Preparation: 3010A
TCLP

Instrument ID: TJA ICP TRACE
Lab File ID: DEC1305
Initial Weight/Volume: 5.0 mL
Final Weight/Volume: 25.0 mL

Analyte	Result	Qual	RL
Antimony	<2.0		2.0
Beryllium	<0.50		0.50
Nickel	<4.0		4.0
Thallium	<1.0		1.0

Laboratory Control Sample - Batch: 700-13145

Lab Sample ID: LCS 700-13145/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 12/13/2005 1717
Date Prepared: 10/28/2005 0949

Analysis Batch: 700-15069
Prep Batch: 700-13145
Units: mg/L

Method: 6010B
Preparation: 3010A
TCLP

Instrument ID: TJA ICP TRACE
Lab File ID: DEC1305
Initial Weight/Volume: 5.0 mL
Final Weight/Volume: 25.0 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Antimony	5.00	4.4	88	80 - 120	
Beryllium	5.00	4.7	94	80 - 120	
Nickel	5.00	4.6	92	80 - 120	
Thallium	5.00	4.4	89	80 - 120	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Method Blank - Batch: 700-13147

Method: 6010B
Preparation: 3050BLab Sample ID: MB 700-13147/14-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2005 1427
Date Prepared: 10/28/2005 0925Analysis Batch: 700-13285
Prep Batch: 700-13147
Units: mg/KgInstrument ID: TJA ICP TRACE
Lab File ID: OCT3105
Initial Weight/Volume: 0.50 g
Final Weight/Volume: 50.0 mL

Analyte	Result	Qual	RL
	<2.0		2.0
Antimony	<1.0		1.0
Arsenic	<1.0		1.0
Barium	<0.40		0.40
Beryllium	<0.50		0.50
Cadmium	<1.0		1.0
Chromium	<2.0		2.0
Copper	<5.0		5.0
Iron	<0.50		0.50
Lead	<1.0		1.0
Manganese	<4.0		4.0
Nickel	<0.25		0.25
Selenium	<1.0		1.0
Silver	<1.0		1.0
Thallium	<2.0		2.0
Zinc			

Method Blank - Batch: 700-13147

Method: 6010B
Preparation: 3050BLab Sample ID: MB 700-13147/14-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 12/13/2005 1730
Date Prepared: 10/28/2005 0925Analysis Batch: 700-15069
Prep Batch: 700-13147
Units: mg/KgInstrument ID: TJA ICP TRACE
Lab File ID: DEC1305
Initial Weight/Volume: 0.50 g
Final Weight/Volume: 50.0 mL

Analyte	Result	Qual	RL
	<2.0		2.0
Antimony	<0.40		0.40
Beryllium	<5.0		5.0
Iron	<1.0		1.0
Manganese	<1.0		1.0
Thallium			

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Laboratory Control Sample - Batch: 700-13147

Method: 6010B
Preparation: 3050B

Lab Sample ID: LCS 700-13147/15-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 12/13/2005 1736
Date Prepared: 10/28/2005 0925

Analysis Batch: 700-15069
Prep Batch: 700-13147
Units: mg/Kg

Instrument ID: TJA ICP TRACE
Lab File ID: DEC1305
Initial Weight/Volume: 0.50 g
Final Weight/Volume: 50.0 mL

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Antimony	100	98	98	75 - 125	
Beryllium	100	100	102	75 - 125	
Iron	100	100	103	75 - 125	
Manganese	100	100	101	75 - 125	
Thallium	100	100	101	75 - 125	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Laboratory Control

Laboratory Control Duplicate Recovery Report - Batch: 700-13147

Method: 6010B

Preparation: 3050B

LCS Lab Sample ID: LCS 700-13147/15-A

Client Matrix: Solid

Dilution: 1.0

Date Analyzed: 10/31/2005 1437

Date Prepared: 10/28/2005 0925

Analysis Batch: 700-13285

Prep Batch: 700-13147

Units: mg/Kg

Instrument ID: TJA ICP TRACE

Lab File ID: OCT3105

Initial Weight/Volume: 0.50 g

Final Weight/Volume: 50.0 mL

LCSD Lab Sample ID: LCSD 700-13147/16-A

Client Matrix: Solid

Dilution: 1.0

Date Analyzed: 10/31/2005 1446

Date Prepared: 10/28/2005 0925

Analysis Batch: 700-13285

Prep Batch: 700-13147

Units: mg/Kg

Instrument ID: TJA ICP TRACE

Lab File ID: OCT3105

Initial Weight/Volume: 0.50 g

Final Weight/Volume: 50.0 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Antimony	90	103	75 - 125	13	20		
Arsenic	90	103	75 - 125	14	20		
Barium	103	103	75 - 125	1	20		
Beryllium	95	109	75 - 125	14	20		
Cadmium	96	109	75 - 125	13	20		
Chromium	93	110	75 - 125	16	20		
Copper	91	105	75 - 125	14	20		
Iron	98	127	75 - 125	26	20		
Lead	94	108	75 - 125	14	20		
Manganese	94	107	75 - 125	14	20		
Nickel	96	112	75 - 125	15	20		
Selenium	86	99	75 - 125	14	20		
Silver	108	110	75 - 125	2	20		
Thallium	93	107	75 - 125	14	20		
Zinc	106	121	75 - 125	14	20		

Matrix Spike - Batch: 700-13147

Method: 6010B

Preparation: 3050B

Lab Sample ID: 700-7010-1

Client Matrix: Solid

Dilution: 1.0

Date Analyzed: 10/31/2005 1602

Date Prepared: 10/28/2005 0925

Analysis Batch: 700-13285

Prep Batch: 700-13147

Units: mg/Kg

Instrument ID: TJA ICP TRACE

Lab File ID: OCT3105

Initial Weight/Volume: 0.52 g

Final Weight/Volume: 50.0 mL

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Zinc	130	96.2	240	109	75 - 125	

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 700-13147Method: 6010B
Preparation: 3050BMS Lab Sample ID: 700-7010-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2005 1602
Date Prepared: 10/28/2005 0925Analysis Batch: 700-13285
Prep Batch: 700-13147Instrument ID: TJA ICP TRACE
Lab File ID: OCT3105
Initial Weight/Volume: 0.52 g
Final Weight/Volume: 50.0 mLMSD Lab Sample ID: 700-7010-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2005 1611
Date Prepared: 10/28/2005 0925Analysis Batch: 700-13285
Prep Batch: 700-13147Instrument ID: TJA ICP TRACE
Lab File ID: OCT3105
Initial Weight/Volume: 0.62 g
Final Weight/Volume: 50.0 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Arsenic	103	99	75 - 125	19	20		
Barium	46	40	75 - 125	8	20		
Cadmium	100	95	75 - 125	21	20		
Chromium	100	95	75 - 125	18	20		
Copper	108	104	75 - 125	18	20		
Nickel	100	95	75 - 125	17	20		
Selenium	101	99	75 - 125	20	20		
Silver	113	116	75 - 125	15	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Method Blank - Batch: 700-13443

Lab Sample ID: MB 700-13443/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/04/2005 1146
Date Prepared: 11/03/2005 1235

Analysis Batch: 700-13480
Prep Batch: 700-13443
Units: mg/L

Method: 7470A
Preparation: 7470A
TCLP

Instrument ID: LEEMAN PS200
Lab File ID: N/A
Initial Weight/Volume: 5.0 mL
Final Weight/Volume: 40.0 mL

Analyte	Result	Qual	RL
Mercury	<0.020		0.020

Laboratory Control/
Laboratory Control Duplicate Recovery Report - Batch: 700-13443

Method: 7470A
Preparation: 7470A
TCLP

LCS Lab Sample ID: LCS 700-13443/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/04/2005 1147
Date Prepared: 11/03/2005 1235

Analysis Batch: 700-13480
Prep Batch: 700-13443
Units: mg/L

Instrument ID: LEEMAN PS200
Lab File ID: N/A
Initial Weight/Volume: 5.0 mL
Final Weight/Volume: 40.0 mL

LCSD Lab Sample ID: LCSD 700-13443/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/04/2005 1148
Date Prepared: 11/03/2005 1235

Analysis Batch: 700-13480
Prep Batch: 700-13443
Units: mg/L

Instrument ID: LEEMAN PS200
Lab File ID: N/A
Initial Weight/Volume: 5.0 mL
Final Weight/Volume: 40.0 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Mercury	113	105	80 - 120	8	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 700-13443****Method: 7470A
Preparation: 7470A
TCLP****MS Lab Sample ID:** 700-7010-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/04/2005 1151
Date Prepared: 11/03/2005 1235**Analysis Batch:** 700-13480
Prep Batch: 700-13443**Instrument ID:** LEEMAN PS200
Lab File ID: N/A
Initial Weight/Volume: 5.0 mL
Final Weight/Volume: 40.0 mL**MSD Lab Sample ID:** 700-7010-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/04/2005 1153
Date Prepared: 11/03/2005 1235**Analysis Batch:** 700-13480
Prep Batch: 700-13443**Instrument ID:** LEEMAN PS200
Lab File ID: N/A
Initial Weight/Volume: 5.0 mL
Final Weight/Volume: 40.0 mL

Analyte	% Rec		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Mercury	101	101	80 - 120	NC	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Method Blank - Batch: 700-13203

Method: 7471A
Preparation: 7471A

Lab Sample ID: MB 700-13203/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2005 1129
Date Prepared: 10/28/2005 1430

Analysis Batch: 700-13236
Prep Batch: 700-13203
Units: mg/Kg

Instrument ID: LEEMAN PS200
Lab File ID: N/A
Initial Weight/Volume: 0.40 g
Final Weight/Volume: 40 mL

Analyte	Result	Qual	RL
Mercury	<0.020		0.020

Laboratory Control/
Laboratory Control Duplicate Recovery Report - Batch: 700-13203

Method: 7471A
Preparation: 7471A

LCS Lab Sample ID: LCS 700-13203/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2005 1135
Date Prepared: 10/28/2005 1430

Analysis Batch: 700-13236
Prep Batch: 700-13203
Units: mg/Kg

Instrument ID: LEEMAN PS200
Lab File ID: N/A
Initial Weight/Volume: 0.40 g
Final Weight/Volume: 40 mL

LCSD Lab Sample ID: LCSD 700-13203/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 10/31/2005 1138
Date Prepared: 10/28/2005 1430

Analysis Batch: 700-13236
Prep Batch: 700-13203
Units: mg/Kg

Instrument ID: LEEMAN PS200
Lab File ID: N/A
Initial Weight/Volume: 0.40 g
Final Weight/Volume: 40 mL

Analyte	% Rec		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Mercury	112	110	80 - 120	2	20		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Method Blank - Batch: 700-14187

Method: 3500 CR D

Preparation: N/A

Lab Sample ID: MB 700-14187/1

Client Matrix: Solid

Dilution: 1.0

Date Analyzed: 11/01/2005 1138

Date Prepared: N/A

Analysis Batch: 700-14187

Prep Batch: N/A

Units: mg/Kg

Instrument ID: No Equipment Assigned

Lab File ID: N/A

Initial Weight/Volume: 10 mL

Final Weight/Volume: 10 mL

Analyte	Result	Qual	RL
Chromium, hexavalent	<0.040		0.040

Laboratory Control/
Laboratory Control Duplicate Recovery Report - Batch: 700-14187

Method: 3500 CR D

Preparation: N/A

LCS Lab Sample ID: LCS 700-14187/2

Client Matrix: Solid

Dilution: 1.0

Date Analyzed: 11/01/2005 1138

Date Prepared: N/A

Analysis Batch: 700-14187

Prep Batch: N/A

Units: mg/Kg

Instrument ID: No Equipment Assigned

Lab File ID: N/A

Initial Weight/Volume: 10 mL

Final Weight/Volume: 10 mL

LCSD Lab Sample ID: LCSD 700-14187/3

Client Matrix: Solid

Dilution: 1.0

Date Analyzed: 11/01/2005 1138

Date Prepared: N/A

Analysis Batch: 700-14187

Prep Batch: N/A

Units: mg/Kg

Instrument ID: No Equipment Assigned

Lab File ID: N/A

Initial Weight/Volume: 10 mL

Final Weight/Volume: 10 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Chromium, hexavalent	94	98	80 - 120	4.8	30.0		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Method Blank - Batch: 700-13508

Method: 351.2
Preparation: 351.2

Lab Sample ID: MB 700-13508/1-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/04/2005 1543
Date Prepared: 11/02/2005 1030

Analysis Batch: 700-13510
Prep Batch: 700-13508
Units: mg/Kg

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 20 mL
Final Weight/Volume: 20 mL

Analyte	Result	Qual	RL
Nitrogen, Kjeldahl	<0.13		0.13

**Laboratory Control/
Laboratory Control Duplicate Recovery Report - Batch: 700-13508**

Method: 351.2
Preparation: 351.2

LCS Lab Sample ID: LCS 700-13508/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/04/2005 1543
Date Prepared: 11/02/2005 1030

Analysis Batch: 700-13510
Prep Batch: 700-13508
Units: mg/Kg

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 20 mL
Final Weight/Volume: 20 mL

LCSD Lab Sample ID: LCSD 700-13508/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 11/04/2005 1543
Date Prepared: 11/02/2005 1030

Analysis Batch: 700-13510
Prep Batch: 700-13508
Units: mg/Kg

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 20 mL
Final Weight/Volume: 20 mL

Analyte	% Rec		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Nitrogen, Kjeldahl	112	87	65 - 135	25	50		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Client: Syngenta Crop Protection, Inc.

Job Number: 700-7010-1

Method Blank - Batch: 680-28256

Method: 9012A

Preparation: 9012A

Lab Sample ID: MB 680-28256/1-A

Client Matrix: Solid

Dilution: 1.0

Date Analyzed: 11/10/2005 0708

Date Prepared: 11/09/2005 0500

Analysis Batch: 680-28259

Prep Batch: 680-28256

Units: mg/Kg

Instrument ID: No Equipment Assigned

Lab File ID: N/A

Initial Weight/Volume: 1.00 g

Final Weight/Volume: 50 mL

Analyte	Result	Qual	RL
Cyanide, Total	<0.50		0.50

Laboratory Control/

Laboratory Control Duplicate Recovery Report - Batch: 680-28256

Method: 9012A

Preparation: 9012A

LCS Lab Sample ID: LCS 680-28256/2-A

Client Matrix: Solid

Dilution: 1.0

Date Analyzed: 11/10/2005 0708

Date Prepared: 11/09/2005 0500

Analysis Batch: 680-28259

Prep Batch: 680-28256

Units: mg/Kg

Instrument ID: No Equipment Assigned

Lab File ID: N/A

Initial Weight/Volume: 1.00 g

Final Weight/Volume: 50 mL

LCSD Lab Sample ID: LCSD 680-28256/3-A

Client Matrix: Solid

Dilution: 1.0

Date Analyzed: 11/10/2005 0708

Date Prepared: 11/09/2005 0500

Analysis Batch: 680-28259

Prep Batch: 680-28256

Units: mg/Kg

Instrument ID: No Equipment Assigned

Lab File ID: N/A

Initial Weight/Volume: 1.00 g

Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Cyanide, Total	97	97	75 - 125	0	30		

Calculations are performed before rounding to avoid round-off errors in calculated results.

Quality Control Results

Job Number: 700-7010-1

Client: Syngenta Crop Protection, Inc.

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 680-28256Method: 9012A
Preparation: 9012A

MS Lab Sample ID: 700-7102-C-1-B MS Analysis Batch: 680-28259
Client Matrix: Solid Prep Batch: 680-28256
Dilution: 1.0
Date Analyzed: 11/10/2005 0822
Date Prepared: 11/09/2005 0500

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.02 g
Final Weight/Volume: 50 mL

MSD Lab Sample ID: 700-7102-C-1-C MSD Analysis Batch: 680-28259
Client Matrix: Solid Prep Batch: 680-28256
Dilution: 1.0
Date Analyzed: 11/10/2005 0822
Date Prepared: 11/09/2005 0500

Instrument ID: No Equipment Assigned
Lab File ID: N/A
Initial Weight/Volume: 1.02 g
Final Weight/Volume: 50 mL

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Cyanide, Total	113	95	75 - 115	18	30		

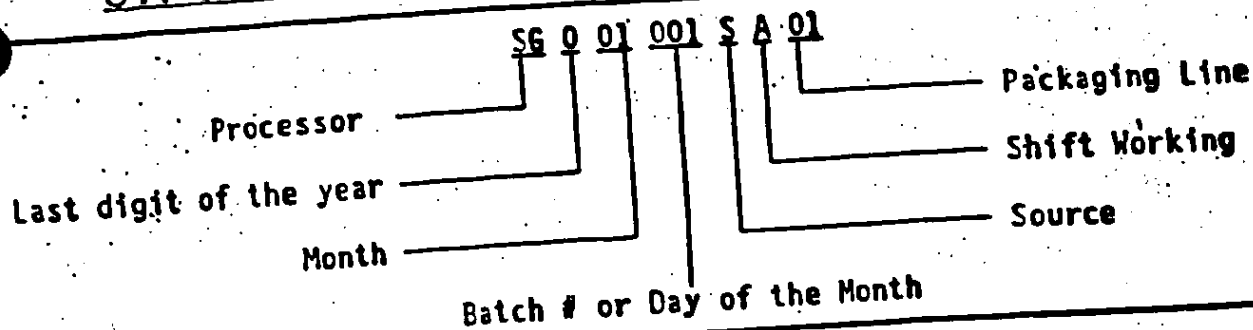
Calculations are performed before rounding to avoid round-off errors in calculated results.

St. Gabriel Plant Finished Goods Coding System

Attachment 2

9/25/81

ST. GABRIEL'S FINISHED GOODS CODING SYSTEM



NOTE: The FIFO sticker contains first 8 digits only. Entire code located on package.

A. PROCESSOR

SG = All St. Gabriel main plant units.
SD = St. Gabriel Chemical Development Pilot Plant

B. Batch # or Day of the Month

All units which are true batch units will follow this definition exactly. However, our continuous units can not use this definition because they have no true batches. We have defined a batch for continuous units as: whenever a significant change occurs we will call that the end of a batch. Significant changes are changes in work shift, silo, feed tank, etc. *FOR RECAL II, THIS WILL BE THE DATE THE LOAD WAS STARTED.*

C. Source Codes

Powder Silos

A - 1
B - 2
C - 3
E - 5
G - 7
J - 9

Liquid Silos

D - 4
F - 6
H - 8
K - 10

Tanks

L - 3137F
M - 3137FA
U - 4107F
V - 4108F
R - 3101F
Y - 3104DB

N - Downtown Warehouse
Q - Liquid Warehouse
O - South Warehouse
P - Prepackaged Technical
S - Test Formula
T - Tank/Railcar
Z - Repackaged Product

TRAILER NUMBER - RECAL II

D. Shift Codes

"A", "B", "C" or "D" = 12 Hour Shifts

"E" = Straight Days

E. Packaging Line

Liquid Lines

01 - A Line
02 - B Line
03 - Mini Line
04 - Drum Line
60 - Mini-Rework Line
70 - Eicep Formulation
97 - Tank/Rail Cars
99 - Tank Trucks

Powder Lines

05 - A Bulk Bag
06 - E Bulk Bag
10 - D 20K

Nine-O Lines

18 - 10# Monobagger
19 - 10#, 20# Bemis Line

Dry Blend Lines

31 - 50 lb. Bag in Box
32 - 20 Kilo or 25 lb. Multi
33 - 450 or 550 Kilo Sack
34 - 4/5/40/50 Lb. Box

APPENDIX A

RECAL II PROGRAM
SHIPMENTS (Edited for off-spec material)
JULY 2005 - JUNE 2006

ANALYSIS	NUMBER	MEAN	STD DEV	MIN	MAX	RANGE
CaCl ₂	309	0.32	0.3961	0.00	1.56	1.56
CaCO ₃	309	80.86	5.0605	66.84	91.08	24.24
Solids	309	47.6	6.3010	38.1	78.4	40.31

* For TCT 0.1 ppm is the detection limit

NUMBER OF SHIPMENTS =	309
TOTAL POUNDS SHIPPED =	10,881,322
AVERAGE POUNDS PER SHIPMENT =	35,215

CAL II PROGRAM
JULY 2005 - JUNE 2006
SITE INFORMATION

Site ID	Farmer	TOTAL POUNDS TO SITE	NUMBER OF SHIPMENTS	Site Description	Parish	Parish Code
Charles Hamilton	115	913,366	26		West Feliciana	63
R. L. BURTON	117	439,980	12		West Feliciana	63
Charles Hamilton	118	7,104,660	201		West Feliciana	63
Charles Hamilton	119	2,423,316	70		West Feliciana	63
TOTALS →		10881322	309			

RECAL II PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION

MINIMUM SPECIFICATION

NUMERIC	ID	CODE	B/L	Farmer	POUNDS	CaCl ₂	CaCO ₃	Solids	CN (ppm)	TOC (ppm)
						3.0%	65.0%	38.0%	2.99	3899
9-Jul-05	489730	507007-04	115-430	HAMILTONC	39120	0.02	98.26	64.76		
13-Jul-05	489847	507011-01	115-431	HAMILTONC	39180	0.04	97.30	84.41		
13-Jul-05	490060	507012-04	117-80	BURTONRL	38260	0.01	97.43	82.00		
14-Jul-05	490139	507013-03	117-81	BURTONRL	38280	0.04	95.40	60.32		
29-Jul-05	491248	507028-04	115-432	HAMILTONC	39220	0.00	95.78	63.04		
4-Aug-05	491739	508003-01	117-82	BURTONRL	39900	0.00	98.90	64.94		
5-Aug-05	491838	508004-04	115-433	HAMILTONC	38900	0.01	93.98	62.08		
8-Aug-05	491948	50805-01	117-71	BURTONRL	39500	0.01	99.20	66.46		
7-Aug-05	492038	508008-03	117-83	BURTONRL	34780	0.01	83.66	49.73		
8-Aug-05	492122	508007-04	115-434	HAMILTONC	36528	0.00	88.58	52.48		
9-Aug-05	492203	508008-03	117-88	BURTONRL	35580	0.01	85.23	49.28		
10-Aug-05	492301	508009-04	115-435	HAMILTONC	33540	0.00	79.88	47.84		
11-Aug-05	492397	508010-03	117-89	BURTONRL	36180	0.02	76.15	44.01		
12-Aug-05	492550	508011-04	117-70	BURTONRL	35420	0.01	82.37	54.98		
13-Aug-05	492648	508012-03	117-72	BURTONRL	37000	0.73	83.82	52.41		
14-Aug-05	492728	508013-01	117-73	BURTONRL	35900	0.32	85.99	54.87		
15-Aug-05	492811	508014-03	115-437	HAMILTONC	38220	0.16	87.59	56.84		
15-Aug-05	492812	508014-04	115-436	HAMILTONC	35700	0.21	84.46	62.65		
16-Aug-05	492910	508015-01	115-438	HAMILTONC	34980	0.27	82.82	47.59		
17-Aug-05	493028	508016-04	117-74	BURTONRL	34540	0.78	76.46	39.64		
16-Aug-05	493140	508017-01	117-75	BURTONRL	34680	0.25	82.27	44.70		
16-Aug-05	493259	508018-04	115-439	HAMILTONC	33720	0.56	81.71	47.18		
20-Aug-05	493358	508019-01	115-440	HAMILTONC	33880	0.56	80.04	49.69		
20-Aug-05	493357	508019-03	115-441	HAMILTONC	33220	1.71	77.99	45.39		
21-Aug-05	493424	508020-04	115-442	HAMILTONC	34000	0.98	78.24	43.33		
22-Aug-05	493514	508021-01	115-443	HAMILTONC	34320	0.97	76.71	44.26		
22-Aug-05	493515	508021-03	115-444	HAMILTONC	33980	1.55	78.19	41.88		
23-Aug-05	493628	508022-04	115-445	HAMILTONC	33660	1.42	77.60	45.12		
24-Aug-05	493798	508023-01	115-447	HAMILTONC	32200	1.07	76.58	45.13		
24-Aug-05	493799	508023-04	115-448	HAMILTONC	33120	1.05	75.07	41.92		
25-Aug-05	493875	508024-03	115-448	HAMILTONC	31840	2.04	73.02	41.79		
28-Aug-05	493959	508025-01	115-449	HAMILTONC	32720	2.07	73.23	41.55		

JULY 2005 - JUNE 2006

Report Produced 7-JUL-2005 by AMBEAKA1

III Y 2005 - JUNE 2006

MAXIMUM SPECIFICATION											MINIMUM SPECIFICATION										

III Y 2005 - JUNE 2006

Report Produced 7-JUL-2005by AMBEAKA1

RECAL II PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION
MINIMUM SPECIFICATION

NUMERIC		CODE		B/L		Farmer		POUNDS		CaCl ₂		CaCO ₃		Solids		CN (ppm)		TOC (ppm)	
Date	ID																		
13-Dec-05	503720	512012-04		118-89	HAMILTONG			32100	0.70	74.48	40.73					2.98		3898	
18-Dec-05	503847	512013-01		118-84	HAMILTONG			33240	0.04	74.80	44.21								
14-Dec-05	503848	512013-04		118-91	HAMILTONG			34120	0.07	70.43	41.42								
16-Dec-05	504092	512015-04		118-83	HAMILTONG			35620	0.52	73.37	39.58								
20-Dec-05	504093	512015-44		118-88	HAMILTONG			32800	0.05	73.65	38.73								
20-Dec-05	504211	512018-04		118-87	HAMILTONG			34540	0.64	75.76	40.94								
19-Dec-05	504287	512017-01		118-85	HAMILTONG			38480	1.53	76.62	45.04								
23-Dec-05	504380	512018-0587		118-104	HAMILTONG			41360	0.25	77.04	44.83								
23-Dec-05	504381	512018-1243		118-103	HAMILTONG			42840	1.30	80.23	45.15								
21-Dec-05	504613	512020-01		118-86	HAMILTONG			34460	0.09	81.90	47.04								
21-Dec-05	504614	512020-04		118-99	HAMILTONG			34500	0.09	82.37	48.27								
22-Dec-05	504717	512021-01		118-101	HAMILTONG			33500	0.35	80.66	45.27								
3-Jan-06	504718	512021-044		118-110	HAMILTONG			33880	0.11	77.74	43.67								
22-Dec-05	504843	512022-44		118-100	HAMILTONG			34100	0.20	80.24	45.34								
23-Dec-05	504844	512022-04		118-102	HAMILTONG			24080	0.37	80.15	45.49								
24-Dec-05	504920	512023-04		118-108	HAMILTONG			33560	0.31	83.77	45.50								
24-Dec-05	504921	512023-01		118-105	HAMILTONG			32880	0.23	83.00	43.77								
27-Dec-05	504988	512024-01		118-108	HAMILTONG			34000	0.02	78.13	41.20								
27-Dec-05	505058	512025-04		118-107	HAMILTONG			34100	0.08	78.39	44.10								
5-Jan-06	505130	1175		118-112	HAMILTONG			25540	0.14	77.30	43.93								
29-Dec-05	505288	512027-04		118-109	HAMILTONG			34320	0.01	82.04	45.43								
5-Jan-06	505840	601004-04		118-111	HAMILTONG			38640	0.04	89.97	63.98								
8-Jan-06	505985	601005-01		118-113	HAMILTONG			37780	0.03	89.08	63.22								
7-Jan-06	506089	601006-04		118-114	HAMILTONG			38340	0.08	82.65	53.85								
9-Jan-06	506288	601008-04		118-115	HAMILTONG			37700	0.27	81.68	57.02								
15-Jan-06	506387	601009-01		118-116	HAMILTONG			37120	0.18	83.52	57.13								
16-Jan-06	506389	601009-04		118-119	HAMILTONG			40400	0.11	84.61	59.63								
15-Jan-06	508503	601010-044		118-117	HAMILTONG			34360	0.09	84.08	58.71								
8-Feb-06	508768	601012-1175		118-141	HAMILTONG			35220	0.26	81.67	54.92								
20-Jan-06	508885	601013-1243		118-130	HAMILTONG			38940	0.28	78.04	53.38								
20-Jan-06	507022	601014-1854		118-127	HAMILTONG			41480	0.56	74.32	45.98								
16-Jan-06	507138	601015-01		118-118	HAMILTONG			20000	0.14	78.28	49.21								

RECAL II PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION
MINIMUM SPECIFICATION

Date	NUMERIC ID	CODE	B/L	Farmer	POUNDS	CaCl ₂	CaCO ₃	Solids	CN (ppm)	TOC (ppm)
18-Jan-06	507272	601018-044	118-121	HAMILTONG	36580	0.18	79.89	52.48	2.99	3899
18-Jan-06	507421	601017-01	118-120	HAMILTONG	35980	0.52	77.80	50.26		
20-Jan-06	507803	601018-04	118-122	HAMILTONG	23900	0.49	75.68	50.45		
20-Jan-06	507743	601019-01	118-129	HAMILTONG	33580	0.32	74.24	48.45		
21-Jan-06	507887	601020-44	118-123	HAMILTONG	36020	0.34	75.81	50.13		
24-Jan-06	508081	601021-04	118-125	HAMILTONG	35100	0.84	74.84	50.00		
24-Jan-06	508235	601022-01	118-124	HAMILTONG	34680	0.53	74.81	51.66		
30-Jan-06	508747	501028-04	118-131	HAMILTONG	47460	0.21	84.46	53.81		
1-Feb-06	508910	601030-04	118-132	HAMILTONG	35580	0.14	84.98	55.67		
1-Feb-06	509067	601031-01	118-133	HAMILTONG	34880	1.35	77.06	52.83		
8-Feb-06	509208	602001-04	118-134	HAMILTONG	34300	1.58	72.31	48.60		
8-Feb-06	509369	602002-44	118-139	HAMILTONG	31140	1.08	77.24	43.30		
8-Feb-06	509518	602003-01	118-135	HAMILTONG	34260	0.58	77.59	41.81		
8-Feb-06	509634	602004-1854	118-137	HAMILTONG	39200	0.08	76.07	43.25		
8-Feb-06	509737	602005-1319	118-136	HAMILTONG	44860	0.05	73.50	45.22		
8-Feb-06	509855	602006-04	118-140	HAMILTONG	33900	0.20	74.11	45.04		
8-Feb-06	510063	602007-01	118-138	HAMILTONG	30720	0.27	77.36	42.09		
9-Feb-06	510215	602008-44	118-143	HAMILTONG	34380	0.10	74.83	47.27		
9-Feb-06	510216	602008-01	118-142	HAMILTONG	35540	0.18	75.24	42.60		
10-Feb-06	510338	602009-01	118-144	HAMILTONG	32600	0.15	78.71	45.11		
10-Feb-06	510339	602009-04	118-145	HAMILTONG	34180	0.09	75.85	44.99		
17-Feb-06	510454	602010-044	118-150	HAMILTONG	34840	0.18	78.87	46.54		
17-Feb-06	510585	602011-01	118-152	HAMILTONG	34200	0.31	77.36	44.55		
17-Feb-06	510688	602012-04	118-151	HAMILTONG	33840	0.18	74.25	42.71		
25-Feb-06	510836	602013-1854	118-159	HAMILTONG	39280	0.08	76.89	41.65		
18-Feb-06	510839	602013-1319	118-149	HAMILTONG	33080	0.28	77.07	44.29		
15-Feb-06	510981	602014-1175	118-147	HAMILTONG	33400	0.27	76.88	41.84		
15-Feb-06	510982	602014-6100	118-146	HAMILTONG	38280	0.65	78.85	42.37		
5-Mar-06	511193	602015-452	118-165	HAMILTONG	38600	0.81	74.64	43.03		
15-Mar-06	511194	602015-1243	118-178	HAMILTONG	40820	0.65	77.71	46.28		
16-Feb-06	511203	602015-05250	118-148	HAMILTONG	39460	0.34	68.35	39.43		
18-Mar-06	511337	602016-1175	118-180	HAMILTONG	40660	0.13	80.89	40.05		

RECAL II PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION
MINIMUM SPECIFICATION

NUMERIC	CODE	B/L	Farmer	POUNDS	CaCl ₂	CaCO ₃	Solids	CN	TOC
Date	ID							(ppm)	(ppm)
24-Feb-06	511338 602018-05250	118-157	HAMILTONG	33740	0.09	81.78	45.23		
18-Mar-06	511467 602017-1319	118-179	HAMILTONG	40040	0.06	79.91	41.04		
20-Feb-06	511561 602018-01	118-153	HAMILTONG	33380	0.20	81.08	39.74		
20-Feb-06	511671 602019-04	118-154	HAMILTONG	32820	0.09	79.98	38.88		
28-May-06	511814 602020-044	119-67	HAMILTONG	31100	0.04	80.55	40.31		
23-Feb-06	511997 602021-04	118-155	HAMILTONG	34800	0.08	78.88	39.58		
23-Feb-06	511998 602021-01	118-158	HAMILTONG	33880	0.09	77.51	38.10		
24-Feb-06	512141 602022 2051	118-158	HAMILTONG	34220	0.23	89.32	39.55		
27-Feb-06	512286 602023-04	118-180	HAMILTONG	34800	0.14	75.07	41.07	0.02	1457.50
2-Mar-06	512380 602024-03251	118-181	HAMILTONG	41780	0.24	72.61	42.57	0.06	2059.50
17-Mar-06	512513 602025-0525	118-184	HAMILTONG	43100	0.19	83.28	45.16		
17-Mar-06	512804 602026-42550	118-183	HAMILTONG	41380	0.18	82.48	46.86		
4-Mar-06	512708 602027-2124	118-184	HAMILTONG	41780	0.13	80.54	59.91		
7-Mar-06	512861 602028-04	118-187	HAMILTONG	35480	0.16	83.03	48.26		
4-Mar-06	513013 603001-2051	118-183	HAMILTONG	44240	0.36	83.02	50.38		
2-Mar-06	513014 603001-2138	118-182	HAMILTONG	34840	0.26	82.22	49.78		
24-Mar-06	513131 603002-03251	118-187	HAMILTONG	25180	0.45	79.80	45.57		
28-Mar-06	513260 603003-2138	119-06	HAMILTONG	34540	0.52	79.12	43.19		
8-Mar-06	513365 603004-13073	118-172	HAMILTONG	34880	0.29	82.23	44.19		
8-Mar-06	513468 603005-2124	118-171	HAMILTONG	35100	0.36	82.90	48.14		
7-Mar-06	513609 603006-01	118-168	HAMILTONG	34500	0.15	71.49	44.43		
8-Mar-06	513610 603006-2051	118-169	HAMILTONG	33180	0.15	73.51	41.43		
8-Mar-06	513736 603007-04	118-170	HAMILTONG	34740	0.19	78.47	46.20		
17-Mar-06	513737 602022-1438	118-185	HAMILTONG	39480	0.00	78.94	42.89		
9-Mar-06	513845 603008-01	118-173	HAMILTONG	33500	0.33	69.28	42.04		
9-Mar-06	513846 603008-04	118-174	HAMILTONG	34140	0.24	73.43	44.90		
12-Mar-06	513988 603009-01	118-175	HAMILTONG	33860	0.13	80.41	40.88		
12-Mar-06	514095 603010-04	118-176	HAMILTONG	33440	0.37	76.28	42.37		
16-Mar-06	514096 603010-2124	118-182	HAMILTONG	41300	0.20	76.74	41.45		
15-Mar-06	514187 603011-452	118-177	HAMILTONG	39200	0.11	79.63	41.22		
16-Mar-06	514288 603012-2051	118-181	HAMILTONG	41220	0.23	78.42	41.01		
18-Mar-06	514436 603013-04	118-187	HAMILTONG	33400	0.42	80.03	43.18		

JULY 2005 - JUNE 2006

Report Produced 7-JUL-2005 by AMBEAKA1

RECAL II PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION ~~38.0%~~
MINIMUM SPECIFICATION ~~38.0%~~

Date	NUMERIC ID	CODE	B/L	Farmer	POUNDS	CaCl ₂	CaCO ₃	Solids	CN (ppm)	TOC (ppm)
4-Apr-08	517041	604002-04	119-17	HAMILTONG	34180	0.43	84.30	49.95	2.99	3899
4-Apr-08	517908	604003-01	119-18	HAMILTONG	33980	0.18	78.78	40.01		
5-Apr-08	518037	604004-04	119-19	HAMILTONG	33180	0.08	84.43	46.76		
6-Apr-08	518174	604005-01	119-20	HAMILTONG	34760	0.13	83.54	48.73		
7-Apr-08	518300	604006-04	119-21	HAMILTONG	34880	0.98	77.92	38.93		
8-Apr-08	518389	604007-01	119-22	HAMILTONG	35600	0.14	78.14	42.53		
8-Apr-08	518390	604007-04	119-23	HAMILTONG	34860	0.62	78.41	44.85		
9-Apr-08	518488	604008-01	119-24	HAMILTONG	33820	0.43	79.87	42.91		
12-Apr-08	518588	604009-01	119-26	HAMILTONG	33480	0.19	80.57	40.69	0.02	284.30
12-Apr-08	518591	604008-04	119-25	HAMILTONG	33780	0.26	81.17	39.40		
25-Apr-08	519454	604011-1220	119-40	HAMILTONG	34298	0.15	80.48	48.27		
17-Apr-08	519862	604018-01	119-27	HAMILTONG	34980	0.12	80.24	48.11		
17-Apr-08	519863	604018-04	119-28	HAMILTONG	18480	0.22	80.57	53.20		
18-Apr-08	519945	604017-01	119-29	HAMILTONG	36980	0.14	82.53	51.29		
18-Apr-08	519946	604017-04	119-30	HAMILTONG	36860	0.13	84.44	48.55		
19-Apr-08	520058	604018-01	119-31	HAMILTONG	34820	0.13	78.57	44.78		
19-Apr-08	520059	604018-04	119-32	HAMILTONG	34340	0.14	81.74	47.01		
20-Apr-08	520142	604019-01	119-33	HAMILTONG	35100	0.12	78.02	41.86		
22-Apr-08	520325	604018-04	119-35	HAMILTONG	34520	0.18	81.17	44.38		
22-Apr-08	520326	604021-01	119-34	HAMILTONG	35020	0.15	79.54	44.39	<0.040	2389.00
23-Apr-08	520367	604022-01	119-36	HAMILTONG	36560	0.11	81.94	45.33		
24-Apr-08	520464	604023-04	119-37	HAMILTONG	35920	0.28	80.00	51.19		
25-Apr-08	520465	604023-2040	119-39	HAMILTONG	24740	0.11	80.53	50.62		
25-Apr-08	520571	604024-01	119-38	HAMILTONG	34880	0.27	78.09	44.47		
27-Apr-08	520710	604025-04	119-41	HAMILTONG	35620	0.21	78.59	46.27		
28-Apr-08	520888	604026-01	119-42	HAMILTONG	35880	0.57	81.39	44.91		
28-May-08	521022	604027-1319	119-66	HAMILTONG	34100	0.32	82.28	47.22		
29-Apr-08	521139	604028-04	119-43	HAMILTONG	36340	0.55	81.14	42.44		
1-May-08	521223	604029-01	119-44	HAMILTONG	36820	0.19	82.78	48.93		
1-May-08	521335	604030-04	119-45	HAMILTONG	36880	0.19	77.29	44.85		
2-May-08	521460	605001-01	119-46	HAMILTONG	35540	0.20	83.52	52.76		
3-May-08	521575	605002-04	119-47	HAMILTONG	36580	0.10	83.10	52.77		

RECAL II PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION
MINIMUM SPECIFICATION

Date	NUMERIC ID	CODE	B/L	Farmer	POUNDS	CaCl ₂	CaCO ₃	Solids	CN (ppm)	TOC (ppm)
5-May-06	521668	605003-01	119-48	HAMILTONG	34480	0.27	76.40	49.88	2.99	3899
5-May-06	521784	605004-04	119-48	HAMILTONG	34700	0.70	80.37	44.55		
7-May-06	521878	605005-01	119-50	HAMILTONG	35640	0.08	81.40	46.42		
7-May-06	521980	605008-04	119-51	HAMILTONG	36960	0.41	78.95	44.40		
10-May-06	522148	605007-01	119-52	HAMILTONG	36580	0.80	87.42	51.09		
10-May-06	522268	605009-04	119-53	HAMILTONG	35380	0.44	84.90	48.08		
13-May-06	522461	605011-01	119-54	HAMILTONG	35220	0.05	84.32	48.98		
13-May-06	522580	605012-04	119-55	HAMILTONG	35320	0.04	85.30	45.97		
15-May-06	522753	605013-01	119-56	HAMILTONG	37540	0.12	82.63	43.65		
15-May-06	522754	60514-04	119-57	HAMILTONG	38600	0.04	82.59	43.02		
17-May-06	522841	605015-01	119-58	HAMILTONG	36800	0.07	87.77	52.88		
17-May-06	522967	605016-04	119-59	HAMILTONG	36240	0.11	85.94	51.10		
19-May-06	523050	605017-01	119-61	HAMILTONG	35540	0.10	79.50	48.21		
19-May-06	523168	605018-04	119-62	HAMILTONG	35700	0.11	83.23	51.69		

This table was incorrectly printed.
The corrected table print is attached as follows.
No other information in this report was affected. RSB
8/15/06

OFF-SPECIFICATION REPORT

OFF-SPECIFICATION RETURN										
MAXIMUM SPECIFICATION										
MINIMUM SPECIFICATION										

Note: Bold Indicates failure.

- ¹ load involved in traffic accident 10-17-05-all residues sent to CWM-Carlysle-35,040 lb RECAL II lost in accident plus 7100 lb debris.
- ² load rejected due to ammonium phosphate spill resulting in process change sent to commercial landfarm as soil pH modifier-45,940 lb
- ³ load rejected due to specified off-spec parameters sent to commercial landfarm as soil pH modifier-28,360 lb.
- ⁴ allowed to dry and later retested showing passing results and shipped under BOL shown.

Total off-spec not shipped to farmers, but shipped to off-site disposal-110,340 lb

RECAL II PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION

MINIMUM SPECIFICATION

Date	NUMERIC ID	CODE	B/L	Farmer	POUNDS	CaCl ₂	CaCO ₃	Solids	CN (ppm)	TOC (ppm)
9-Jul-05	489730	507007-04	115-430	HAMILTONC	39120	0.02	96.26	84.76	2.99	3898
13-Jul-05	489847	507011-01	115-431	HAMILTONC	39180	0.04	97.30	84.41		
13-Jul-05	490060	507012-04	117-80	BURTONRL	38260	0.01	97.43	82.00		
14-Jul-05	490139	507013-03	117-81	BURTONRL	38260	0.04	95.40	80.32		
29-Jul-05	491248	507028-04	115-432	HAMILTONC	39220	0.00	95.78	83.04		
4-Aug-05	491739	508003-01	117-82	BURTONRL	39900	0.00	98.90	84.94		
5-Aug-05	491838	508004-04	115-433	HAMILTONC	39900	0.01	93.98	82.08		
8-Aug-05	491949	50805-01	117-71	BURTONRL	39500	0.01	99.20	86.46		
7-Aug-05	492038	508008-03	117-83	BURTONRL	34780	0.01	83.66	49.73		
8-Aug-05	492122	508007-04	115-434	HAMILTONC	38528	0.00	88.58	52.49		
8-Aug-05	492203	508008-03	117-68	BURTONRL	35580	0.01	85.23	49.28		
10-Aug-05	492301	508009-04	115-435	HAMILTONC	33540	0.00	79.66	47.84		
11-Aug-05	492397	508010-03	117-89	BURTONRL	36180	0.02	76.15	44.01		
12-Aug-05	492550	508011-04	117-70	BURTONRL	35420	0.01	82.37	54.98		
13-Aug-05	492648	508012-03	117-72	BURTONRL	37000	0.73	83.82	52.41		
14-Aug-05	492729	508013-01	117-73	BURTONRL	35900	0.32	85.99	54.87		
15-Aug-05	492811	508014-03	115-437	HAMILTONC	36220	0.16	87.59	56.64		
15-Aug-05	492812	508014-04	115-438	HAMILTONC	35700	0.21	84.46	62.65		
16-Aug-05	492810	508015-01	115-438	HAMILTONC	34980	0.27	82.82	47.59		
17-Aug-05	493028	508016-04	117-74	BURTONRL	34540	0.78	76.46	39.84		
18-Aug-05	493140	508017-01	117-75	BURTONRL	34880	0.25	82.27	44.70		
19-Aug-05	493259	508018-04	115-439	HAMILTONC	33720	0.56	81.71	47.18		
20-Aug-05	493358	508019-01	115-440	HAMILTONC	33880	0.56	80.04	49.69		
20-Aug-05	493357	508019-03	115-441	HAMILTONC	33220	1.71	77.99	45.39		
21-Aug-05	493424	508020-04	115-442	HAMILTONC	34000	0.98	78.24	43.33		
22-Aug-05	493514	508021-01	115-443	HAMILTONC	34320	0.97	76.71	44.26		
22-Aug-05	493515	508021-03	115-444	HAMILTONC	33980	1.55	78.19	41.86		
23-Aug-05	493628	508022-04	115-445	HAMILTONC	33880	1.42	77.90	45.12		
24-Aug-05	493798	508023-01	115-447	HAMILTONC	32200	1.07	76.56	45.13		
24-Aug-05	493799	508023-04	115-448	HAMILTONC	33120	1.05	75.07	41.92		
25-Aug-05	493875	508024-03	115-448	HAMILTONC	31840	2.04	73.02	41.79		
28-Aug-05	493959	508025-01	115-449	HAMILTONC	32720	2.07	73.23	41.55		

RECAL II PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION 38.0% 65.0% 3.0% 2.98 3899

MINIMUM SPECIFICATION

Date	NUMERIC ID	CODE	B/L	Farmer	POUNDS	CaCl ₂	CaCO ₃	Solids	CN (ppm)	TOC (ppm)
27-Aug-05	494039	508028-04	115-450	HAMILTONG	34460	1.73	76.00	46.08		
28-Aug-05	494101	508027-01	115-451	HAMILTONG	33120	2.33	77.30	48.89		
1-Sep-05	494187	508028-04	115-452	HAMILTONG	35000	0.49	79.10	49.32		
2-Sep-05	494457	509001-01	115-453	HAMILTONG	35860	0.04	87.39	58.59		
8-Sep-05	494853	509007-04	115-454	HAMILTONG	36440	0.10	81.39	52.13		
9-Sep-05	494912	509008-03	115-455	HAMILTONG	37260	0.14	83.36	57.48		
11-Sep-05	495081	509009-04	118-02	HAMILTONG	33940	0.24	81.18	65.32		
11-Sep-05	495082	509010-01	118-01	HAMILTONG	32060	0.25	80.11	51.13		
12-Sep-05	495144	509011-03	118-03	HAMILTONG	35040	0.77	81.91	49.62		
13-Sep-05	495227	509012-04	118-04	HAMILTONG	35940	0.17	83.90	49.25		
14-Sep-05	495359	509013-01	118-05	HAMILTONG	34940	0.08	80.04	50.24		
15-Sep-05	495441	509014-04	118-08	HAMILTONG	35060	0.24	82.94	50.25		
16-Sep-05	495512	509015-01	118-07	HAMILTONG	35440	0.18	81.57	49.17		
17-Sep-05	495589	509015-03	118-08	HAMILTONG	35800	0.12	83.57	53.88		
19-Sep-05	495840	509017-04	118-09	HAMILTONG	34680	0.86	79.92	49.44		
20-Sep-05	495769	509018-01	118-10	HAMILTONG	33800	0.09	88.55	41.72		
22-Sep-05	495915	509021-04	118-11	HAMILTONG	36440	0.15	82.73	55.53		
27-Sep-05	496079	509022-01	118-12	HAMILTONG	33120	0.84	82.22	52.65		
4-Oct-05	496808	501003-01	118-13	HAMILTONG	39420	0.08	91.17	63.95		
5-Oct-05	496716	501004-03	118-14	HAMILTONG	36820	0.11	90.01	61.28		
6-Oct-05	496795	501005-01	118-15	HAMILTONG	36320	0.33	85.88	55.23		
7-Oct-05	496933	501008-03	118-16	HAMILTONG	38540	0.08	87.92	60.95		
8-Oct-05	497018	501007-01	118-17	HAMILTONG	38820	0.08	88.02	64.24		
8-Oct-05	497020	501007-03	118-18	HAMILTONG	37380	0.08	89.12	63.73		
9-Oct-05	497100	501008-04	118-19	HAMILTONG	36360	0.37	84.22	52.08		
10-Oct-05	497190	5010109-01	118-20	HAMILTONG	33560	2.78	76.91	47.02		
11-Oct-05	497288	501010-04	118-21	HAMILTONG	34460	1.07	80.51	45.22		
13-Oct-05	497404	501011-01	118-22	HAMILTONG	34820	1.24	81.78	45.91		
14-Oct-05	497499	501012-04	118-23	HAMILTONG	33720	0.12	81.49	44.48		
14-Oct-05	497593	501013-03	118-24	HAMILTONG	34580	0.13	80.58	49.99		
15-Oct-05	497688	501014-01	118-25	HAMILTONG	34980	0.09	81.26	45.76		
17-Oct-05	497787	501018-01	118-26	HAMILTONG	34400	0.05	79.70	45.21		

RECAL II PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION 3889
MINIMUM SPECIFICATION 3889

NUMERIC	ID	CODE	B/L	Farmer	POUNDS	CaCl ₂	CaCO ₃	Solids	CN (ppm)	TOC (ppm)
						3.0%	65.0%	38.0%	2.99	3889
Date										
19-Oct-05	498015	501017-04	118-28	HAMILTONG	38520	0.14	79.32	47.27	0.12	284.00
19-Oct-05	498016	501018-01	118-29	HAMILTONG	38080	0.15	82.63	48.64		
21-Oct-05	498093	501019-044	118-30	HAMILTONG	33860	0.09	80.10	48.39		
21-Oct-05	498185	501020-01	118-31	HAMILTONG	35940	0.48	81.99	40.36		
23-Oct-05	498268	501021-04	118-32	HAMILTONG	32340	0.20	79.60	39.48		
23-Oct-05	498346	501022-01	118-33	HAMILTONG	31680	0.58	86.63	38.96		
7-Nov-05	498421	500501023-44	118-45	HAMILTONG	24800	0.22	85.53	38.59		
25-Oct-05	498573	501024-01	118-34	HAMILTONG	30940	0.31	83.02	38.57		
30-Oct-05	498773	501025-04	118-38	HAMILTONG	33440	0.44	83.25	52.58		
30-Oct-05	499047	501029-01	118-37	HAMILTONG	34380	0.35	85.39	45.39		
1-Nov-05	499150	501030-044	118-38	HAMILTONG	34420	0.71	87.70	48.16		
1-Nov-05	499258	501031-01	118-39	HAMILTONG	34580	0.12	80.29	47.98		
2-Nov-05	499415	511001-044	118-40	HAMILTONG	36840	0.11	80.59	46.48		
2-Nov-05	499416	511001-04	118-35	HAMILTONG	34940	0.15	77.41	45.95		
3-Nov-05	499537	511002-04	118-42	HAMILTONG	34720	0.09	85.09	57.04		
3-Nov-05	499538	511002-01	118-41	HAMILTONG	36860	0.30	83.03	52.02		
19-Nov-05	499682	511003-044	118-54	HAMILTONG	36080	0.35	84.02	48.15		
5-Nov-05	499786	511004-04	118-43	HAMILTONG	33500	0.20	83.87	44.07		
6-Nov-05	499906	511005-01	118-44	HAMILTONG	34320	0.13	84.95	45.73		
7-Nov-05	499993	511008-04	118-46	HAMILTONG	37180	0.09	82.77	44.90		
8-Nov-05	500115	511007-01	118-47	HAMILTONG	34880	0.04	86.94	50.82		
8-Nov-05	500125	511007-044	118-48	HAMILTONG	33900	0.07	86.05	47.38		
11-Nov-05	500207	511008-04	118-49	HAMILTONG	35180	0.11	85.62	47.63		
11-Nov-05	500320	511009-01	118-50	HAMILTONG	36340	0.10	87.39	47.80		
16-Nov-05	500410	511010-044	118-59	HAMILTONG	33500	0.03	89.81	50.09		
12-Nov-05	500524	511011-04	118-58	HAMILTONG	36280	0.04	91.63	56.51		
14-Nov-05	500684	511012-01	118-57	HAMILTONG	37540	0.08	88.16	55.94		
15-Nov-05	500787	511013-04	118-56	HAMILTONG	35160	0.10	87.12	54.98		
16-Nov-05	500912	511015-01	118-51A	HAMILTONG	33500	0.07	79.39	48.96		
15-Nov-05	500913	511015-04	118-51	HAMILTONG	35840	0.15	80.75	46.04		
17-Nov-05	501001	511016-04	118-52	HAMILTONG	36200	0.14	80.09	49.67		
19-Nov-05	501115	511017-01	118-55	HAMILTONG	39460	0.08	79.49	45.55		

JULY 2005 - JUNE 2006

Report Produced 7-JUL-2005 by AMBEAKA1

RECAL II PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION
MINIMUM SPECIFICATION

Date	NUMERIC ID	CODE	B/L	Farmer	POUNDS	CaCl ₂	CaCO ₃	Solids	CN (ppm)	TOC (ppm)
13-Dec-05	503720	512012-04	118-89	HAMILTONG	32100	0.70	74.49	40.73	2.99	3899
16-Dec-05	503847	512013-01	118-94	HAMILTONG	33240	0.04	74.80	44.21		
14-Dec-05	503848	512013-04	118-91	HAMILTONG	34120	0.07	70.43	41.42		
16-Dec-05	504092	512015-04	118-83	HAMILTONG	35620	0.52	73.37	39.58		
20-Dec-05	504093	512015-44	118-98	HAMILTONG	32800	0.05	73.65	39.73		
20-Dec-05	504211	512018-04	118-97	HAMILTONG	34540	0.64	75.78	40.94		
18-Dec-05	504287	512017-01	118-95	HAMILTONG	36460	1.53	78.82	45.04		
23-Dec-05	504380	512018-0587	118-104	HAMILTONG	41380	0.25	77.04	44.83		
23-Dec-05	504381	512018-1243	118-103	HAMILTONG	42840	1.30	80.23	45.15		
21-Dec-05	504613	512020-01	118-96	HAMILTONG	34460	0.09	81.90	47.04		
21-Dec-05	504614	512020-04	118-99	HAMILTONG	34500	0.09	82.37	48.27		
22-Dec-05	504717	512021-01	118-101	HAMILTONG	33500	0.35	80.66	45.27		
3-Jan-06	504718	512021-044	118-110	HAMILTONG	33880	0.11	77.74	43.67		
22-Dec-05	504843	512022-44	118-100	HAMILTONG	34100	0.20	80.24	45.34		
23-Dec-05	504844	512022-04	118-102	HAMILTONG	24080	0.37	80.15	45.49		
24-Dec-05	504920	512023-04	118-106	HAMILTONG	33560	0.31	83.77	45.50		
24-Dec-05	504921	512023-01	118-105	HAMILTONG	32980	0.23	83.00	43.77		
27-Dec-05	504988	512024-01	118-108	HAMILTONG	34000	0.02	78.13	41.20		
27-Dec-05	505058	512025-04	118-107	HAMILTONG	34100	0.08	76.39	44.10		
5-Jan-06	505130	11175	118-112	HAMILTONG	25540	0.14	77.30	43.93		
28-Dec-05	505288	512027-04	118-109	HAMILTONG	34320	0.01	82.04	45.43		
5-Jan-06	505840	601004-04	118-111	HAMILTONG	38840	0.04	89.97	63.98		
6-Jan-06	505965	601005-01	118-113	HAMILTONG	37780	0.03	89.08	63.22		
7-Jan-06	506089	601008-04	118-114	HAMILTONG	38340	0.08	82.65	53.85		
9-Jan-06	506268	601008-04	118-115	HAMILTONG	37700	0.27	81.88	57.02		
15-Jan-06	506367	601009-01	118-116	HAMILTONG	37120	0.18	83.52	57.13		
16-Jan-06	506389	601009-04	118-118	HAMILTONG	40400	0.11	84.61	59.63		
15-Jan-06	506503	601010-044	118-117	HAMILTONG	34360	0.09	84.08	58.71		
8-Feb-06	506768	601012-1175	118-141	HAMILTONG	35220	0.28	81.87	54.92		
20-Jan-06	506885	601013-1243	118-130	HAMILTONG	38940	0.28	78.04	53.38		
20-Jan-06	507022	601014-1854	118-127	HAMILTONG	41480	0.50	74.32	45.98		
16-Jan-06	507138	601015-01	118-118	HAMILTONG	20000	0.14	78.28	49.21		

JULY 2005 - JUNE 2006

Report Produced 7-JUL-2005 by AMBEAKA1

RECALL PROGRAM

JULY 2005 - JUNE 2006

MAXIMUM SPECIFICATION
MINIMUM SPECIFICATION

DATE	NUMERIC ID	CODE	BIL	FARMER	POUNDS	CaCl ₂	CaCO ₃	Solids	CN (ppm)	TOC (ppm)
5-May-06	521666	605003-01	119-48	HAMILTONC	34480	0.27	76.40	49.88		
5-May-06	521784	605004-04	119-49	HAMILTONC	34700	0.70	80.37	44.55		
7-May-06	521876	605005-01	119-50	HAMILTONC	35840	0.08	81.40	46.42		
7-May-06	521980	605006-04	119-51	HAMILTONC	36960	0.41	78.95	44.40		
10-May-06	522148	605007-01	119-52	HAMILTONC	36580	0.80	87.42	51.09		
10-May-06	522268	605008-04	119-53	HAMILTONC	35380	0.44	84.90	48.08		
13-May-06	522461	605011-01	119-54	HAMILTONC	35220	0.05	84.32	48.98		
13-May-06	522580	605012-04	119-55	HAMILTONC	35320	0.04	85.30	45.97		
15-May-06	522753	605013-01	119-56	HAMILTONC	37540	0.12	82.63	43.65		
15-May-06	522754	60514-04	119-57	HAMILTONC	36600	0.04	82.59	43.02		
17-May-06	522841	605015-01	119-58	HAMILTONC	36600	0.07	87.77	52.88		
17-May-06	522967	605016-04	119-59	HAMILTONC	36240	0.11	85.94	51.10		
19-May-06	523050	605017-01	119-61	HAMILTONC	35540	0.10	79.50	48.21		
19-May-06	523188	605018-04	119-62	HAMILTONC	35700	0.11	83.23	51.69		
22-May-06	523270	605019-01	119-63	HAMILTONC	36920	0.32	82.47	48.86		
22-May-06	523436	605020-04	119-64	HAMILTONC	33480	0.44	83.59	42.15		
24-May-06	523522	605022-01	119-65	HAMILTONC	36860	0.10	83.01	44.70		
24-May-06	523617	605023-04	119-66	HAMILTONC	38400	0.12	83.27	49.20		
24-May-06	524510	605031-01	119-69	HAMILTONC	40500	0.13	83.78	56.28	0.16	878.80
2-Jun-06	524601	606001-04	119-70	HAMILTONC	28480	0.10	87.28	56.28		
10-Jun-06	525152	606008-01	119-71	HAMILTONC	40800	0.08	91.08	64.04		
				309	10881322	308.00	308.00	309.00	8.00	9.00
						0.32	80.86	47.63	0.08	1369.66
						0.40	5.06	6.30	0.08	1182.97
						0.00	66.84	38.10	0.00	233.80
						1.56	81.08	78.41	0.16	3735.00
						1.56	24.24	40.31	0.16	3501.20

RECAL II PROGRAM
SHIPMENTS (Edited for off-spec material)
JULY 2005 - JUNE 2006

ANALYSIS	NUMBER	MEAN	STD DEV	MIN	MAX	RANGE
CaCl ₂	309	0.32	0.3961	0.00	1.56	1.56
CaCO ₃	309	80.86	5.0605	66.84	91.08	24.24
Solids	309	47.6	6.3010	38.1	78.4	40.31

* For TCT 0.1 ppm is the detection limit.

NUMBER OF SHIPMENTS =	309
TOTAL POUNDS SHIPPED =	10,881,322
AVERAGE POUNDS PER SHIPMENT =	35,215

LEGAL II PROGRAM
SEPT 2005 - JUNE 2006
SITE INFORMATION

Farmer	Site #	TOTAL POUNDS TO SITE	NUMBER OF SHIPMENTS	Site Description	Parish	Parish Code
Charles Hamilton	115	913,366	28		West Feliciana	63
R L BURTON	117	439,980	12		West Feliciana	63
Charles Hamilton	118	7,104,660	201		West Feliciana	63
Charles Hamilton	119	2,423,316	70		West Feliciana	63
TOTALS		10881322	309			

APPENDIX B

RECAL II DISTRIBUTION INFORMATION

Farmer: Charles Hamilton
11003 Dewberry
St. Francisville, LA 70775
West Feliciana Parish

Site Location: 115
Sample ID #5 (Lab # 1102009022)
Section 82, R-2W, T-1S

Phone: 225-635-4227

No. of Acres: 3281 acres

Site Geology: Silt Loam

Crop Type: Bermuda grass Source: LSU. Ag. Center Date: 05/07/03
12/15/04

% Yield: _____ How Measured: _____

Other Chemicals Applied: _____

Loading Rate: 2.5 tons/acre Source: La. Cooperative Ext. Date: 05/07/03
12/15/04

Soil Analysis

pH 5.43
CEC 8.64 meq/100 g

Sampled by: Charles Hamilton

Date: 05/07/03
12/15/04

Stock # 054-010-1785 (Rev. 2/02)

RECAL II DISTRIBUTION INFORMATION

Owner: Charles Hamilton
11003 Dewberry
St. Francisville LA 70775
West Feliciana Parish

Site Location: R-2W, T-1S
Section 82 21 FR 6W
sample ID # 5
Lab # 1102009022

Phone: _____

No. of Acres: 3281

Site Geology: _____

Crop Type: Hay, Grazing

Source: LSU AG

Date: 5/7/03

% Yield: _____

How Measured: _____

Other Chemicals Applied: _____

Loading Rate: 2.5 Tons / Acre

Source: LA Cooperative Ext.

Date: 5/7/03

Soil Analyses

Before Application

After Application

CEC

Arsenic

Barium

Cadmium

Chromium

Copper

Lead

Mercury

Nickel

Selenium

Silver

Zinc

Moisture

Sampled by:

Date:

5.43

8.64 mg/100g

C. Hamilton

5/7/03 12/15/04

NOTE: Staple analyses report with this sheet.

RECAL II Loading Rate Calculation

Farmer: Charles Hamton

Site: 11003 Dewberry Section 82 R2N T5 S15

Directions: 11003 Dewberry
St Francisville 70775

H: 5.43

Loading Rate: 2.5 Tons

Number of Acres: 3281

Pounds to ship: 455 load @ 36000 #/load

Trucks to ship: 455

Signature: R.M. Onell

Date: 6-1-03

DISTRIBUTION AGREEMENT
RECAL II

Agreement between Syngenta Crop Protection ("Seller") and _____
Charles Hamilton ("Buyer").

1. Seller agrees to sell and transfer to Buyer Recal II, (the "Product"), for a period from _____, 2003 through, 2004. Either party shall have the right to terminate this Agreement upon 30 days written notice.
2. Buyer agrees that it will use the Product only as a soil amendment agent in Buyer's agricultural business and Buyer will not resell the product.
3. Buyer shall pay the Seller \$1.00 per truckload to defray cost of transportation incurred by Seller in delivering the Product to Buyer. Payment shall be due within thirty (30) days of the date of the invoice.
4. **SELLER MAKES NO EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**
In no case shall Seller be liable for consequential, special or indirect damages resulting from the use or handling of the Product.
5. Buyer agrees to comply with all federal, state and local laws and regulations in the use and handling of the product, including disposal of any containers or excess Product.
6. Title shall pass from Seller to Buyer upon delivery of the Product to Buyer.
7. This Agreement may not be assigned by either party except with the prior written consent of the other party.
8. No modification of the Agreement shall be effective unless in writing and signed by the parties hereto.
9. Any questions under this Agreement shall be interpreted in accordance with the laws of the State of Louisiana as if this Agreement were made and to be performed in that state.
10. Before delivery, Buyer must read and sign a Method of Handling Sheet. Buyer agrees to handle and use the Product in accordance with each Method of Handling Sheet.

Syngenta Crop Protection, Inc.

[Signature]
Signature and Date

Buyer

[Signature]
Signature and Date



METHOD OF HANDLING
RECAL II

Distribution Agreement must be signed before delivery.

HANDLING

1. Wear the following when handling Recal II:
 - goggles
 - rubber gloves
 - rubber boots
 - trousers and long sleeve shirts
2. Wash with large amounts of water on any body part exposed to Recal II.
3. Read Material Safety Data Sheet before application.
4. Recal II should be distributed as soon as possible. Cover undistributed Recal II with plastic to minimize exposure to rain and reduce Recal II runoff contamination.
5. Remove any plastic, including delivery trailer liner, before distributing Recal II.

DISTRIBUTION

6. Do not exceed four tons per acre.
7. The Recal II spreader will be made available by Syngenta.
8. Farmer will be responsible for spreader maintenance.
9. Transportation of the spreader will be the responsibility of the farmer who used it last.
10. Spreader requires use of a front-end loader.
11. Syngenta will deliver one to two truck loads per day at about 40,000 pounds per truck.

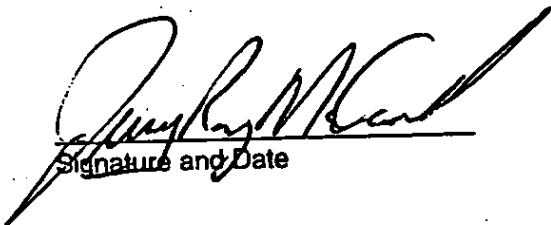


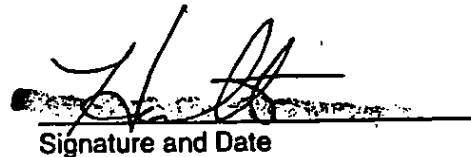
MISCELLANEOUS

12. Soil samples will be taken before distribution and semi-annually thereafter by the Cooperative Extension Services.
13. The following analysis are required:
 - soil profile (30 in)
 - pH
 - Cation Exchange Capacity (CEC)
 - Heavy metals
14. A check strip (non-treated area) must be flagged.
15. The following information is to be reported to the Extension Services regarding the treated area:
 - Number of acres.
 - Crops to be grown.
 - Yield data of previous crop.
 - Yield data of current crop.
 - ⇒ Row crop - at harvest
 - ⇒ Pasture - measure using cages
 - Amount and nature of any other chemicals used in previous and current year.

Syngenta Crop Protection, Inc.

Buyer


Signature and Date


Signature and Date

MATERIAL SAFETY DATA SHEET

ST. GABRIEL NO. 1095

Novartis Crop Protection Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
Novartis: 1-800-888-8372
CHEMTREC: 1-800-424-9300

1. CHEMICAL IDENTIFICATION

Product Name: **RECAL II**

Product No.: Not Available

EPA Signal Word: Not Applicable

Active Ingredient(%): Calcium Carbonate (65-80%) CAS No.: 471-34-1

Chemical Name: Calcium Carbonate

Chemical Class: Inorganic Mineral

2. COMPOSITION/INFORMATION ON INGREDIENTS

	OSHA	ACGIH	<u>Other</u>	NTP/IARC/OSHA <u>Carcinogen</u>
<u>Material</u>	<u>PEL</u>	<u>TLV</u>		
Calcium Sulfate	15 mg/m3 (Total Dust)/ 5 mg/m3 (Respirable)	10 mg/m3 (Total Dust)	Not Established	No
Calcium Hydroxide	15 mg/m3 (Total Dust) 5 mg/m3 (Respirable)	5 mg/m3 (Total Dust)	Not Established	
Calcium Carbonate (65-80%)	15 mg/m3 (Total Dust) 5 mg/m3 (Respirable)	10 mg/m3 (Total Dust)	Not Established	No

3. HAZARDS IDENTIFICATION

Notes to Physician

There is no specific antidote if this product is ingested.

If a large amount has been ingested and emesis is inadequate, lavage stomach.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Symptoms of Acute Exposure

Prolonged or repeated contact with skin may result in drying and redness.

Hazardous Decomposition Products

SOx from the decomposition of calcium sulfate.

Physical Properties

Appearance: Tan to Gray Powder Cake

Odor: Mild Odor

Unusual Fire, Explosion and Reactivity Hazards

None Known

4. FIRST AID MEASURES

If poisoning is suspected, immediately contact a physician, the nearest hospital, or the nearest Poison Control Center. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Ingestion: If victim is fully conscious, give 1 or 2 glasses of water to drink and induce vomiting. Never give anything by mouth to an unconscious person.

Eye Contact: Immediately rinse eyes with a large amount of running water. Hold eye lids apart to rinse the entire surface of the eyes and lids. Do not apply any medicating agents except on the advice

of a physician.

Contact:

Wash with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except on the advice of a physician. Remove contaminated clothing and decontaminate prior to use.

Inhalation: Move victim from contaminated area to fresh air. Apply artificial respiration if necessary, preferably by mechanical means.

Notes to Physician

There is no specific antidote if this product is ingested.

If a large amount has been ingested and emesis is inadequate, lavage stomach.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Medical Condition Likely to be Aggravated by Exposure

None Known

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):

Not Applicable

Flammable Limits (% in Air):

Lower: %; Upper: % Not Applicable

Autoignition Temperature:

Not Available

Flammability:

Not Flammable

Unusual Fire, Explosion and Reactivity Hazards

None Known

In Case of Fire

Use dry chemical foam, or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated building, area, and equipment until decontaminated.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Wear chemical safety glasses with side shields or chemical goggles, rubber gloves, rubber boots, long-sleeved shirt, long pants, head covering, and a NIOSH-approved dust respirator. For small spills, sweep up, keeping dust to a minimum, and place in an approved chemical container. Wash the spill area with water containing a strong detergent, absorb with pet litter or other absorbent material, sweep up and place in a chemical container. Seal the container and handle in an approved manner. Flush the area with water to remove any residue. Do not allow wash water to contaminate water supplies.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of the reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco usage, and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

Eye Contact: To avoid eye contact, wear safety glasses with side shields or chemical goggles.

Skin Contact: To avoid skin contact, wear rubber gloves, rubber boots, long-sleeved shirt, long pants and a head covering.

Inhalation: To avoid breathing dust, wear a NIOSH-approved dust respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Tan to Gray Powder Cake

Odor: Mild Odor

Melting Point: Not Available

Boiling Point: Not Applicable

Specific Gravity/Density: Not Available

pH: Not Available

Solubility in H₂O

Calcium Carbonate : Not Available

Vapor Pressure

Calcium Carbonate : Not Available

10. STABILITY AND REACTIVITY

Reactivity

Stability: Stable
 Hazardous Polymerization: Will Not Occur
 Conditions to Avoid: None Known

Hazardous Decomposition Products

SOx from the decomposition of calcium sulfate.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies

Ingestion:	<u>Not Available</u>	
	Oral LD50 (Rat):	Not Available
Dermal:	<u>Not Available</u>	
	Dermal LD50 (Rabbit)	Not Available
Inhalation:	<u>Not Available</u>	
	Inhalation LC50 (Rat)	Not Available
Eye Contact:	Not Available	
Skin Contact:	Not Available	
Skin Sensitization:	Not Available	

Mutagenic Potential

Calcium Carbonate : None Observed

Reproductive Hazard Potential

RECAL II

Calcium : None Observed
Carbonate

Chronic/Subchronic Toxicity Studies

Calcium : None Observed
Carbonate

Carcinogenic Potential

Calcium : None Observed
Carbonate

Other Toxicity Information

Not Available

Toxicity of Other Components

Calcium Hydroxide

Exposure may irritate eyes, skin or mucous membranes.

Calcium Sulfate

Exposure may irritate eyes, skin or mucous membranes.

Target Organs

Active Ingredients

Calcium : Eyes and Skin
Carbonate

Inert Ingredients

Calcium : Eyes and Skin
Hydroxide

Calcium : Eyes and Skin
Sulfate

12. ECOLOGICAL INFORMATION

Summary of Effects

Calcium Carbonate:

Not Available

Eco-Acute Toxicity

Calcium
Carbonate:

Not Available

Eco-Chronic Toxicity

Calcium
Carbonate:

Not Available

Environmental Fate

Calcium Carbonate:

Not Available

13. DISPOSAL CONSIDERATION

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification:

Not Applicable; No Label or Placard Required

B/L Freight Classification

Chemicals, N.O.I.

International Transportation

Not Applicable

15. REGULATORY INFORMATION

SARA Title III Classification

Section 311/312: Acute Health Hazard

Section 313
chemical(s): Not Applicable

Proposition 65

Not Applicable

CERCLA Reportable Quantity (RQ)

None

RCRA Classification

Not Applicable

TSCA Status

On TSCA Inventory

RECAL II

OTHER INFORMATION

NFPA Hazard Ratings

Health:	1	0	Least
Flammability:	0	1	Slight
Reactivity:	0	2	Moderate
		3	High
		4	Severe

Questions concerning the safe handling of the product should be referred to:

Industrial Health

1-800-334-9481

Issued 9/29/88
Date:

Revised 4/1/97
Date:

Supersedes: 10/4/96

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVP#: Not Available

MSDS's are valid for 7 days after printdate. Other printed documents become invalid 24 hrs after printdate unless otherwise specified in procedure #CAT00001.

RECAL IITM

SOIL AMENDMENT AGENT

Syngenta Crop Protection, Inc.
P.O. Box 11
St. Gabriel, LA 70776



Cooperative Extension Service
Division of Plant Science
Louisiana Agricultural Experiment Station
Department of Agronomy
126 Madison B. Sturgis Hall - LSU
(225)578-1261
Website: www.agctr.lsu.edu

Soil Test Results

Hamilton, Charles
11003 Dewberry
St. Francisville, LA 70775
West Feliciana

Lab Number: 1102009022

Sample ID: #5

Soil Texture: silt loam

Area: Alluvial

Irrigated: No

3281

SOIL TEST RESULTS AND INTERPRETATIONS

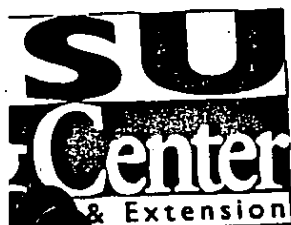
	Results	Interpretation
Calcium, ppm	1,253.57	Low
Magnesium, ppm	308.93	Very High
pH	5.43	Low
1 @ 1 Ton/Ac Lime	6.07	Optimum
Phosphorus, ppm	56.51	Very Low
Potassium, ppm	117.86	Low
Sodium, ppm	34.70	Optimum

Nutrients Needed: lb/Acre

	Form	Nitrogen	Phosphate	Potash
bermudagrass (pasture)	est. hyb. ber.	80-120	140	120
bermudagrass (pasture)	establish comm.	80-120	120	100
bermudagrass (pasture)	grazing	100-200	80	60
bermudagrass (pasture)	hay comm.	200-300	120	180
bermudagrass (pasture)	hay hyb. ber.	300-400	140	200

2.5

CONTACT YOUR COUNTY AGENT (TELEPHONE 225/635-3614) IF YOU HAVE ANY QUESTIONS ABOUT THIS REPORT. THE AGENT ALSO RECEIVES A COPY OF THIS REPORT AND MAY CONTACT YOU TO DISCUSS IT.



McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Restample for CEC

Soil Testing and Plant Analysis Laboratory
Department of Agronomy
Louisiana State University
Baton Rouge, LA 70803
(225)578-1261
Website: www.agctr.lsu.edu/stpal

Date Received: 12/15/2004

Lab Number: 1104160001

Sample ID: Hamilton #5

Soil Texture: fine sandy loam

Area: Alluvial

Irrigated: No

Test Results

	Value	Bermuda (pa
	5.80	Optimum
horus, ppm	17.19	Very Low
sium, ppm	72.67	Low
am, ppm	1,175.58	Medium
esium, ppm	153.95	High
im, ppm	26.10	Optimum

FOUNDATION

	Form	Units: lb/Acre	Nitrogen	Phosphate	Potash
uda (pasture)	est. hyb. ber.		80-120	140	120
uda (pasture)	establish comm.		80-120	120	100
uda (pasture)	grazing		100-200	80	60
uda (pasture)	hay comm.		200-300	120	180
uda (pasture)	hay hyb. ber.		300-400	140	200

Additional crop information please see (<http://www.agctr.lsu.edu/stpal/recsheets/P-210.rtf>)

If there are any questions about this report, please contact your local extension service office at (Telephone 225/687-5155). The extension office also receive a copy of this report.



Department of Agronomy
Soil Testing and Plant Analysis Lab
126 Madison B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261

Website: <http://www.agctr.lsu.edu/stpal>

Soil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004

Lab Number: 1804160001

Sample ID: Hamilton #5

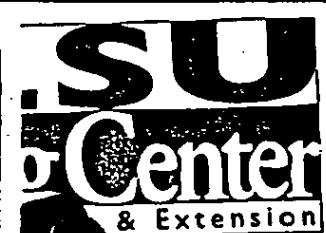
Texture: N/A

Area: Alluvial

Irrigated: No

Test	Results	Interpretation	Very Low	Low	Optimum	High	Very High
ppm	198.66	Very Low	< 301.00	301.00 - 601.00	601.00 - 1,001.00	1,001.00 - 1,500.00	> 1,500.00

If you have any questions about this report, please contact your local extension service office at (225) 225/687-5155. The extension office also receives a copy of this report.



Department of Agronomy
Soil Testing and Plant Analysis Lab
126 Madison B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261
Website: <http://www.agctr.lsu.edu/stpal>

Soil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004

Lab Number: 1504160001

Sample ID: Hamilton #5

Texture: N/A

Area: Alluvial

Irrigated: No

Test	Results	Interpretation	Low	Optimum	High
pH	1.33		< 0.20	0.20 - 0.25	> 0.25
N, ppm	122.41		< 2.50	2.50 - 4.50	> 4.50
P, ppm	26.80		< 2.00	2.00 - 4.00	> 4.00
K, ppm	1.75		< 0.50	0.50 - 1.25	> 1.25

If you have any questions about this report, please contact your local extension service office at (225) 687-5155. The extension office also receives a copy of this report.

Special Analysis Interpretation Sheet
DTPA Extractable Copper, Iron, Manganese and Zinc
J Stevens
Specialist – Soils and Fertilizers

This test analyzes for soil test levels of Copper (Cu), Iron (Fe), Manganese (Mn) and Zinc (Zn) with DTPA-TEA. Following are the interpretation for these elements in Louisiana soils with this extractant.

-----parts per million-----

Soil Test Rating	Copper	Iron	Manganese	Zinc
Low	<0.2	<2.5	<2.0	<0.5
Medium	0.2-0.25	2.5-4.5	2.0-4.0	0.5-1.25
High	>0.25	>4.5	>4.0	>1.25

Copper- Copper deficiencies in plants are rare in Louisiana. They usually occur on soils containing greater than 12% organic matter. Copper toxicities in plants are also rare, usually occurring where large amounts of copper-based pesticides were applied in the past.

Iron- Iron deficiencies are common in some ornamental, turf and fruit crops. The most common crops are azaleas, camellias, blueberries and centipede grass. Iron deficiency symptoms appear as interveinal chlorosis. The leaf becomes yellow while the veins of the leaf remain green. This usually occurs on the newest leaves. The most common cause of iron deficiency is over-liming, although excessive fertilization with phosphorous can also be a factor. Foliar and soil iron fertilizer treatments or soil acidification can help alleviate iron deficiency.

Manganese- Manganese deficiencies are uncommon in Louisiana. Where they occur, they resemble iron deficiencies. Manganese toxicity is a common problem in the state. It is caused by low soil pH (highly acidic soil). It can be corrected by liming the soil to a pH of 5.5 or higher.

Zinc- Zinc deficiencies are observed in Louisiana on rice, corn, ryegrass, pecan trees and other crops. Zinc deficiency is the most common micronutrient deficiency in the state. It is more likely to occur on over-limed or alkaline soils. Soil and/or foliar-applied zinc is used to correct the deficiency.

What can I do about salt problems in soils?

1. Plant salt tolerant plants.
2. Keep the soil moist. However, do not do this with salty irrigation water.
3. Apply gypsum at a rate of 1 ton/acre or 45 lbs/1000sq. ft.
This works best on sandy soils and is very erratic. It will do little good if the soil has compacted layers, dense clay layers or fragipans.
4. If this is a small garden, you may have little choices but to relocate the garden if salts are extremely high.

Special Analysis Interpretation Sheet
Total Soluble Salts
J Stevens
Specialist- Soils and Fertilizers

This test determines the total amount of soluble salts in your soil sample. Total soluble salts are determined through Electrical Conductivity (EC). EC is the amount of electrical current which will pass through a gap in an electrode. Pure water conducts electricity poorly. As the amount of salt in solution increases, the strength of electrical current passing the gap increases. This is briefly how total soluble salts are determined.

Interpretations of salt levels in soils for Louisiana are determined as follows:

Salt Level (parts per million)	Interpretation
0-300	Very low
301-600	Low
601-1000	Medium
1001-1500	High
>1500	Very high

At very low salt levels, few if any crops will be damaged by salts. At low levels, very sensitive crops may be damaged. The danger of salt damage is increased if plants are very young with poorly established root systems or the soil is allowed to become very dry. At very high salt levels in the soil, most crops will suffer yield or growth reduction. Exceptions to this are salt tolerant crops like cotton and bermudagrass. The following table shows the relative salt tolerance of major crops.

Salt Level	Crop affected
Very low	none
Low*	rice, corn, annual flowers, clovers, peas, field beans, alfalfa
Medium	soybeans**, sorghum, tomatoes, cantaloupes
High	wheat
Very high	cotton, bermudagrass
*Danger for damage is greater if plants are small and soil is very dry.	
**Soybeans differ greatly in salt tolerance by variety.	

How do soils become salty?

1. Overfertilization with nitrogen and/or potassium.
2. Use of salty irrigation water. Test irrigation water to determine its suitability for use.
3. Some soils are naturally high in salt.

SOIL TEST INFORMATION SHEET NO. P-210

Prepared by Extension Agronomist Edward Twidwell

Perennial Summer Pasture Grasses—

Bahia, Dallisgrass, Common and Hybrid Bermudas

1. These grasses grow over a wide range of soil pH values, but it is recommended that agricultural limestone be applied when the pH is below 5.0. If the sod is to be overseeded with ryegrass or clovers, the soil pH should be maintained at a pH of 5.8 or above. Where magnesium is medium or lower, use dolomitic limestone. When lime is not needed and magnesium is medium or lower, apply sulfate of potash-magnesia (Sul-Po-Mag or K Mag).

Establishing Perennial Summer Grasses

2. Recommended rates of phosphorus and potassium and 20-40 pounds of nitrogen per acre should be applied and incorporated into the soil before seeding or sprigging.
3. After seedlings emerge or sprigs start to grow, apply 40-60 pounds of nitrogen per acre. An additional 20-40 pounds of nitrogen may be needed in August or early September.

Maintaining Perennial Summer Grasses for Grazing

4. All the recommended rates of phosphorus and potassium and 60-80 pounds of nitrogen per acre should be applied in the spring soon after growth starts.
5. An additional 60-80 pounds of nitrogen will be needed in June. For fall grazing, 30-40 pounds of nitrogen may be needed in August or early September.

Bahia or Hybrid Bermudagrass for Hay

6. One-third to one-half of the recommended phosphorus and potassium and 80-100 pounds of nitrogen should be applied as soon as growth starts in the spring.
7. Apply 80-100 pounds of nitrogen after each cutting of hay (except the last) and one-third of the recommended phosphorus and potassium after the 1st and 2nd cutting or one-half after the 2nd cutting.
8. On uplands and soils that test low in sulfur, applying 10-20 pounds of sulfur per harvest as a sulfate may increase yields. It can be applied by using ammonium sulfate as part of the nitrogen application program or with a blend containing sulfur in the sulfate form.
9. Contact your county agent for additional information and help in your fertilization program. The agent also receives a copy of this report for the parish office files.



Department of Agronomy and Environmental Management
104 Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-2110
Fax: (225)578-1403
Web site: www.lsuagcenter.com

Soil Characterization Lab

Research and Extension Programs
Agriculture
Economic/Community Development
Environment/Natural Resources
Families/Nutrition/Health
4-H Youth Programs

Invoice # 041106
December 21, 2004

Jerry McDonald
3905 Hwy 75
St. Gabriel, LA 70776

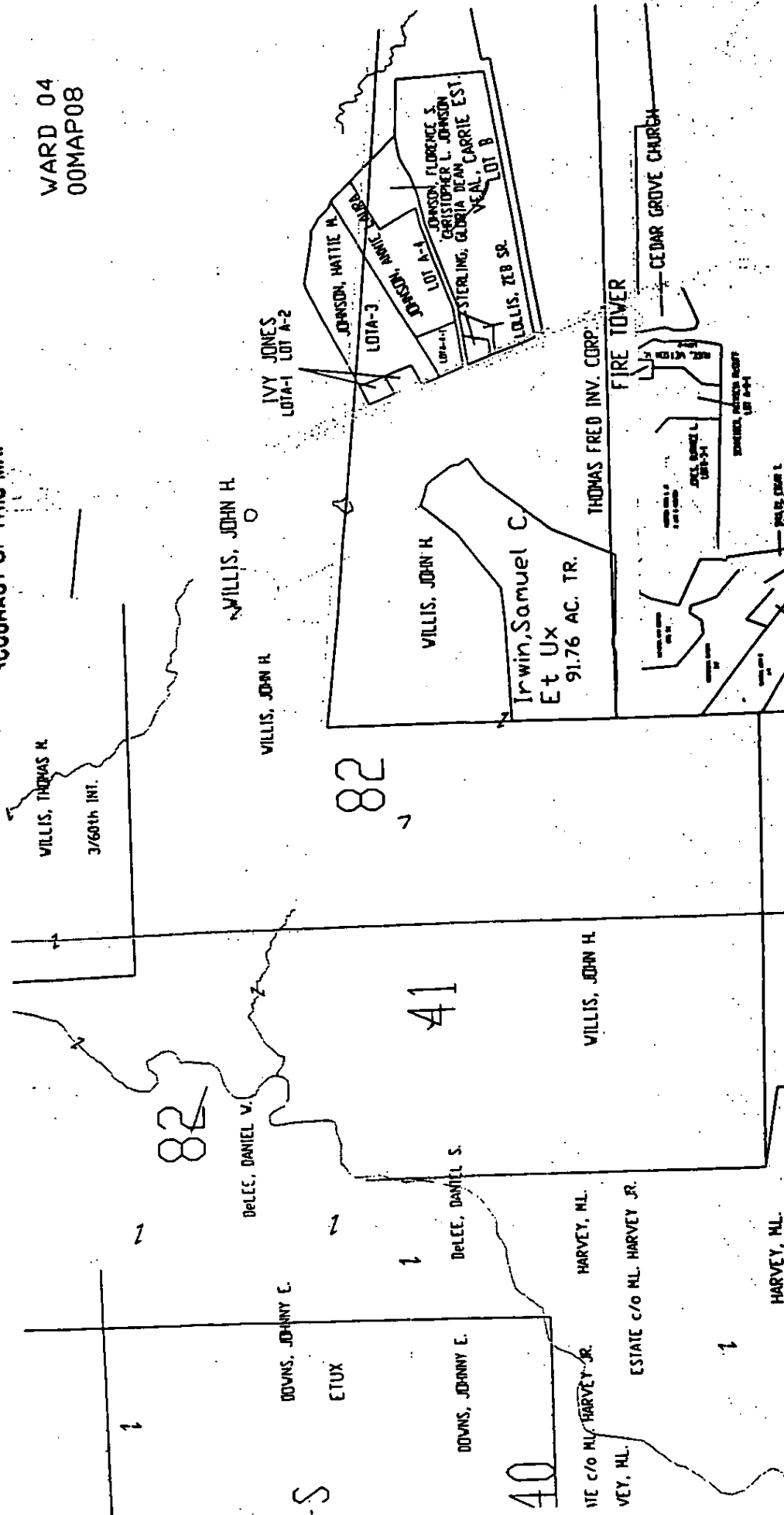
Sample ID	Field Identification	Crop	CEC* (meq/100 g soil)	
1104160001	Hamilton #5	Burmuda (pasture)	8.64	SITE # 115
1104160002	Hamilton #6	Burmuda (pasture)	7.73	
1104160003	Hamilton #8	Burmuda (pasture)	8.27	
1104160004	Hamilton #9	Burmuda (pasture)	8.94	
1104160005	Burton #15	Burmuda (pasture)	7.98	
1104160006	Burton #11	Burmuda (pasture)	5.77	
1104160007	Burton #10	Burmuda (pasture)	5.76	
1104160008	Burton #3	Burmuda (pasture)	10.15	
1104160009	Burton #1	Burmuda (pasture)	9.36	

* Ammonium acetate (pH 7.0) extraction (Soil Survey 1996).



**WEST FELICIANA PARISH TAX
ASSESSOR'S OFFICE MAKES
NO CLAIMS AND WILL ACCEPT
NO LIABILITY AS TO THE
ACCURACY OF THIS MAP**

WARD 04
00MAP08



BEST COPY OF THE NEXT 02 PAGES

DeLee Daniel W.

Lot 2

82

Scott Creek

R 3 V

R 2 V

Z

Willis, John H.

82

Willis, John H. (3/80th Int.)

Willis, Phoscoe M. (4/80th Int.)

Z

Eulaerts, Victoria Mary

RZW

T 1 S

T 2 S

s, Victoria Mary

ST000701 S

RECAL II DISTRIBUTION INFORMATION

Farmer: R.L. Burton
11698 Harris Corner Rd.
St. Francisville, LA 70775

Site Location: 117
Lot #2 - Samples #1 and #3
Sections 71, 79, & 81, R-2W, T-1S
Lab spl ID 1104056009/1104056010
Lab spl ID 1104160008/1104160009

Phone: 225-784-8363

No. of Acres: 500 acres

Site Geology: _____

Crop Type: Bermuda grass

Source: LSU. Ag. Center

Date: 12/15/04

% Yield: _____

How Measured: _____

Other Chemicals Applied: _____

Loading Rate: 2.5 tons/acre

Source: La. Cooperative Ext.

Date: 4/20/04 and
12/15/04

Soil Analysis

pH 5.84
CEC 9.76 meq/100g


Sampled by: R. L. Burton

Date: 4/20/04 and
12/15/04

RA# Site # 117

☐ CALL TAG

LOT # 2

Section 71, 79, & 81, 
Towards south range 2
west

SYNGENTA CROP PROTECTION, INC.
P.O. Box 11, 4200 Gelgy Access Rd. / Hwy. 30
St. Gabriel, La. 70776
Area Code 225-642 1100

SUED _____
VERY

P TO: R.L. BURTON
SICAL ADDRESS REQUIRED 11698 Harris Corner Rd.
P O BOX 50275

P O BOX
St Francisville, LA 70775
225 519 0990

ST 112425071
 225-784-8343 Home, Cell 337 519 0990
☐ COLLECT ☐ PREPAID

CHARGE #:		SHIP VIA	<input type="checkbox"/> COLLECT	<input type="checkbox"/> PREPAID
			DATE SHIPPED:	

CHARGE #:		DATE SHIPPED:
WGT:	BL # <input type="checkbox"/> PK LST # <input type="checkbox"/> INV # <input type="checkbox"/>	

QUANTITY		U OF M	STOCK/PART/MODEL/SN #	DESCRIPTION
				30 mm x 1 + ET 121-

QUANTITY	U OF M		
5	1960s	Recall II	35 bills out to 61 121-

5	LD603		all bills typed and 2/2/05
---	-------	--	-------------------------------

	36,000 #/Load	sent to E.T. 2/2/05
--	---------------	---------------------

	56/000	

[illegible][illegible][illegible][illegible][illegible][illegible]

INSURE ☐ YES ☐ NO DECLARED VALUE \$

REASON FOR SHIPMENT _____

DOES NOT MEET SPEC ☐ NONAUTHORIZED RECEIPT ☐ REPAIR (T&M) ☐ OTHER ☐
 RETURN FOR DEPOSIT ☐

DOES NOT MEET SPECIFICATIONS ☐ PREVENTATIVE MNT ☐ RETURN FOR DEPOSIT ☐
LOANER/SAMPLE ☐ RECEIVED DAMAGED ☐ WARRANTY REPAIR ☐

OVER SHIPMENT ☐ RECEIVED DAMAGED ☐ CALIBRATE ☐
 RETURN ☐ ORDERED WRONG ☐

RENTAL RETURN ☐ ORDERED WITH ☐

NOTES PH Adjustment C. D. Merrill

NOTES _____

SYNGENTA AUTHORIZATION _____

CONSIGNEE SIGNATURE: _____

RECEIVING SIGNATURE: <i>[Signature]</i>	CONSIGNEE SIGNATURE: <i>[Signature]</i>
---	---

R. J. Dutton

MALES - Pecking list CANARY - Purchasing PINK - Receiving GOLDENROD - Guard

WHITE - Packing list CANARY - Purchasing

RECAL II DISTRIBUTION INFORMATION

RL Burton
116 98 Harris Coaner RD
Francisville LA 70725

Site Location:
Lot # 2
Section 71, 79, 81 Township 1 South
Range 2 West

Phone: 225-784-8363

No. of Acres: 500

Geology: _____

Prop Type: Beranda Cias Source: LA cooperative EXT Date: 5-25-04

Yield: _____ How Measured: _____

Other Chemicals Applied: _____

Loading Rate: 2.5 Tons/Acre Source: _____ Date: 5-22-04

Soil Analyses	Before Application	After Application
CEC	AVG - 5.13	
Arsenic	sample #3, 4.95	
Barium	sample #1, 5.31	
Cadmium	9.76 mg/100g	
Chromium		
Copper		
Lead		
Mercury		
Nickel		
Selenium		
Silver		
Zinc		
Moisture		
Sampled by:	<u>RL Burton</u>	
	<u>4/20/04 and 12/1/04</u>	
	<u>4/20/04 corrected RBM</u>	

NOTE: Staple analyses report with this sheet.

ECAL II Loading Rate Calculation

Farmer: RL Burton

Site: Lot #2 Section 71, 79, + 81, Township 1 South Range 2 West T4

Directions: 11198 Harris Conner Rd
St. Francisville LA 70775

Yield: 5.13

Loading Rate: 2.5 Tons

Number of Acres: 500

Pounds to ship: 75 loads @ 36000 #/load

Trucks to ship: 75

Signature: [Signature]

Date: 7-14-05

DISTRIBUTION AGREEMENT
RECAL II

Agreement between Syngenta Crop Protection ("Seller") and
RL Burton ("Buyer").

1. Seller agrees to sell and transfer to Buyer Recal II, (the "Product"), for a period from May 1, 2004 through, 2005 Either party shall have the right to terminate this Agreement upon 30 days written notice.
2. Buyer agrees that it will use the Product only as a soil amendment agent in Buyer's agricultural business and Buyer will not resell the product.
3. Buyer shall pay the Seller \$1.00 per truckload to defray cost of transportation incurred by Seller in delivering the Product to Buyer. Payment shall be due within thirty (30) days of the date of the invoice.
4. **SELLER MAKES NO EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**
In no case shall Seller be liable for consequential, special or indirect damages resulting from the use or handling of the Product.
5. Buyer agrees to comply with all federal, state and local laws and regulations in the use and handling of the product, including disposal of any containers or excess Product.
6. Title shall pass from Seller to Buyer upon delivery of the Product to Buyer.
7. This Agreement may not be assigned by either party except with the prior written consent of the other party.
8. No modification of the Agreement shall be effective unless in writing and signed by the parties hereto.
9. Any questions under this Agreement shall be interpreted in accordance with the laws of the State of Louisiana as if this Agreement were made and to be performed in that state.
10. Before delivery, Buyer must read and sign a Method of Handling Sheet. Buyer agrees to handle and use the Product in accordance with each Method of Handling Sheet.

Syngenta Crop Protection, Inc.

J.M. Donald 5/26/04
Signature and Date

Buyer

x RL Burton 5/28/04
Signature and Date



METHOD OF HANDLING
RECAL II

Distribution Agreement must be signed before delivery.

HANDLING

1. Wear the following when handling Recal II:
 - goggles
 - rubber gloves
 - rubber boots
 - trousers and long sleeve shirts
2. Wash with large amounts of water on any body part exposed to Recal II.
3. Read Material Safety Data Sheet before application.
4. Recal II should be distributed as soon as possible. Cover undistributed Recal II with plastic to minimize exposure to rain and reduce Recal II runoff contamination.
5. Remove any plastic, including delivery trailer liner, before distributing Recal II.

DISTRIBUTION

6. Do not exceed four tons per acre.
7. The Recal II spreader will be made available by Syngenta.
8. Farmer will be responsible for spreader maintenance.
9. Transportation of the spreader will be the responsibility of the farmer who used it last.
10. Spreader requires use of a front-end loader.
11. Syngenta will deliver one to two truck loads per day at about 40,000 pounds per truck.



MISCELLANEOUS

12. Soil samples will be taken before distribution and semi-annually thereafter by the Cooperative Extension Services.

13. The following analysis are required:

- soil profile (30 in)
- pH
- Cation Exchange Capacity (CEC)

~~Heavy metals~~

~~Bill Test Costs to Syngenta~~

14. A check strip (non-treated area) must be flagged.

15. The following information is to be reported to the Extension Services regarding the treated area:

- Number of acres.
- Crops to be grown.

~~Yield data of previous crop.~~

~~Yield data of current crop.~~

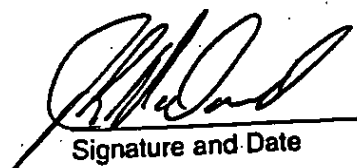
~~Row crop - at harvest~~

~~Pasture - measure using cages~~

~~Amount and nature of any other chemicals used in previous and current year.~~

Syngenta Crop Protection, Inc.

Buyer

 4/25/14
Signature and Date


Signature and Date

RECAL IITM

SOIL AMENDMENT AGENT

Syngenta Crop Protection, Inc.
P.O. Box 11
St. Gabriel, L A 70776

RECAL-II

MATERIAL SAFETY DATA SHEET

ST. GABRIEL NO. 1095

Novartis Crop Protection Inc.

In Case of Emergency, Call

Post Office Box 18300

Novartis: 1-800-888-8372

Greensboro, NC 27419

CHEMTREC: 1-800-424-9300

1. CHEMICAL IDENTIFICATION

Product Name: RECAL II

Product
No.:Not
AvailableEPA Signal
Word:

Not Applicable

Active
Ingredient(%):

Calcium Carbonate (65-80%)

CAS No.: 471-34-1

Chemical
Name:

Calcium Carbonate

Chemical
Class:

Inorganic Mineral

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Material</u>	<u>OSHA</u>	<u>ACGIH</u>	<u>Other</u>	<u>NTP/IARC/OSHA</u> <u>Carcinogen</u>
	<u>PEL</u>	<u>TLV</u>		
Calcium Sulfate	15 mg/m ³ (Total Dust)/ 5 mg/m ³ (Respirable)	10 mg/m ³ (Total Dust)	Not Established	No
Calcium Hydroxide	15 mg/m ³ (Total Dust) 5 mg/m ³ (Respirable)	5 mg/m ³ (Total Dust)	Not Established	
Calcium Carbonate (65-80%)	15 mg/m ³ (Total Dust) 5 mg/m ³ (Respirable)	10 mg/m ³ (Total Dust)	Not Established	No

HAZARDS IDENTIFICATION**Notes to Physician**

There is no specific antidote if this product is ingested.

If a large amount has been ingested and emesis is inadequate, lavage stomach.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Symptoms of Acute Exposure

Prolonged or repeated contact with skin may result in drying and redness.

Hazardous Decomposition Products

SOx from the decomposition of calcium sulfate.

Physical Properties

Appearance: Tan to Gray Powder Cake

Odor: Mild Odor

Unusual Fire, Explosion and Reactivity Hazards

None Known

4. FIRST AID MEASURES

If poisoning is suspected, immediately contact a physician, the nearest hospital, or the nearest Poison Control Center. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Ingestion: If victim is fully conscious, give 1 or 2 glasses of water to drink and induce vomiting. Never give anything by mouth to an unconscious person.

Eye Contact: Immediately rinse eyes with a large amount of running water. Hold eye lids apart to rinse the entire surface of the eyes and lids. Do not apply any medicating agents except on the advice

SCAL II

of a physician.

Skin

Contact:

Wash with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except on the advice of a physician. Remove contaminated clothing and decontaminate prior to use.

Inhalation:

Move victim from contaminated area to fresh air. Apply artificial respiration if necessary, preferably by mechanical means.

Notes to Physician

There is no specific antidote if this product is ingested.

If a large amount has been ingested and emesis is inadequate, lavage stomach.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Medical Condition Likely to be Aggravated by Exposure

None Known

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	Not Applicable
Flammable Limits (% in Air):	Lower: %; Upper: % Not Applicable
Autoignition Temperature:	Not Available
Flammability:	Not Flammable

Unusual Fire, Explosion and Reactivity Hazards

None Known

In Case of Fire

Use dry chemical foam, or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated building, area, and equipment until decontaminated.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Wear chemical safety glasses with side shields or chemical goggles, rubber gloves, rubber boots, long-sleeved shirt, long pants, head covering, and a NIOSH-approved dust respirator. For small spills, sweep up, keeping dust to a minimum, and place in an approved chemical container. Wash the spill area with water containing a strong detergent, absorb with pet litter or other absorbent material, sweep up and place in a chemical container. Seal the container and handle in an approved manner. Flush the area with water to remove any residue. Do not allow wash water to contaminate water supplies.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of the reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco usage, and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RECAL II

- Ingestion:** Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.
- Eye Contact:** To avoid eye contact, wear safety glasses with side shields or chemical goggles.
- Skin Contact:** To avoid skin contact, wear rubber gloves, rubber boots, long-sleeved shirt, long pants and a head covering.
- Inhalation:** To avoid breathing dust, wear a NIOSH-approved dust respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance:** Tan to Gray Powder Cake
- Odor:** Mild Odor
- Melting Point:** Not Available
- Boiling Point:** Not Applicable
- Specific Gravity/Density:** Not Available
- pH:** Not Available

Solubility in H₂O

Calcium Carbonate : Not Available

Vapor Pressure

Calcium Carbonate : Not Available

10. STABILITY AND REACTIVITY

RECAL II

Reactivity

Stability: Stable

Hazardous Polymerization: Will Not Occur

Conditions to Avoid: None Known

Hazardous Decomposition Products

SOx from the decomposition of calcium sulfate.

11. TOXICOLOGICAL INFORMATIONAcute Toxicity/Irritation Studies

Ingestion:	<u>Not Available</u>	
	Oral LD50 (Rat):	Not Available
Dermal:	<u>Not Available</u>	
	Dermal LD50 (Rabbit)	Not Available
Inhalation:	<u>Not Available</u>	
	Inhalation LC50 (Rat)	Not Available
Eye Contact:	Not Available	
Skin Contact:	Not Available	
Skin Sensitization:	Not Available	

Mutagenic Potential

Calcium Carbonate : None Observed

Reproductive Hazard Potential

ECAL II

Calcium Carbonate : None Observed

Chronic/Subchronic Toxicity Studies

Calcium Carbonate : None Observed

Carcinogenic Potential

Calcium Carbonate : None Observed

Other Toxicity Information

Not Available

Toxicity of Other Components

Calcium Hydroxide

Exposure may irritate eyes, skin or mucous membranes.

Calcium Sulfate

Exposure may irritate eyes, skin or mucous membranes.

Target Organs

Active Ingredients

Calcium Carbonate : Eyes and Skin

Inert Ingredients

Calcium Hydroxide : Eyes and Skin

Calcium Sulfate : Eyes and Skin

5/13/2003

ECAL II

2. ECOLOGICAL INFORMATION**Summary of Effects**

Calcium Carbonate:

Not Available

Eco-Acute ToxicityCalcium
Carbonate:

Not Available

Eco-Chronic ToxicityCalcium
Carbonate:

Not Available

Environmental Fate

Calcium Carbonate:

Not Available

13. DISPOSAL CONSIDERATION**Disposal**

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste:

Not Applicable

Listed Waste:

Not Applicable

RECAL II

14. TRANSPORT INFORMATION**DOT Classification:**

Not Applicable; No Label or Placard Required

B/L Freight Classification

Chemicals, N.O.I.

International Transportation

Not Applicable

15. REGULATORY INFORMATION**SARA Title III Classification**

Section 311/312: Acute Health Hazard

Section 313
chemical(s): Not Applicable**Proposition 65**

Not Applicable

CERCLA Reportable Quantity (RQ)

None

RCRA Classification

Not Applicable

SCA Status

On TSCA Inventory

ECAL II

OTHER INFORMATION**NFPA Hazard Ratings**

Health:	1	0	Least
Flammability:	0	1	Slight
Reactivity:	0	2	Moderate
		3	High
		4	Severe

Questions concerning the safe handling of the product should be referred to:

Industrial Health

1-800-334-9481

ed 9/29/88
Date:

Revised 4/1/97
Date:

Supersedes: 10/4/96

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVP#: Not Available

MSDS's are valid for 7 days after printdate. Other printed documents become invalid 24 hrs after printdate unless otherwise specified in procedure #CAT00001.



Department of Agronomy
126 Madison B. Scurie Hall - LSU
Baton Rouge, LA 70803
(225) 578-1261
Website: www.agcenter.lsu.edu

Soil Test Results

Burton, R. L.
11698 Harris Connor Road
St. Francisville, LA 70775
West Feliciana

Date Received: 04/20/2004

Lab Number: 1104056009

Sample ID: #1

Soil Texture: silt loam

Area: Upland

Irrigated: No

SOIL TEST RESULTS AND INTERPRETATIONS

	Results	Interpretation
Calcium, ppm	507.32	Very Low
Magnesium, ppm	71.10	Low
pH	5.31	Low
pH @ 1 Ton/Ac Lime	5.85	Optimum
Phosphorus, ppm	36.79	Medium
Potassium, ppm	86.10	Low
Sodium, ppm	34.60	Optimum

Nutrients Needed: lb/Acre

	Form	Nitrogen	Phosphate	Potash
wheat	grain	80-90	40	60
wheat	grazing	160-200	60	90
wheat	grazing and grain	160-200	60	90

For additional crop information please see (<http://www.agcenter.lsu.edu/stpal/reesheets/C-100.rtf>)

If there are any questions about this report, please contact your local extension service office at (Telephone 225/635-3614). The extension office also receive a copy of this report.



McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Resample for CEC

Soil Testing and Plant Analysis Laboratory
Department of Agronomy
Louisiana State University
Baton Rouge, LA 70803
(225)578-1261
Website: www.agctr.lsu.edu/stpal

Date Received: 12/15/2004

Lab Number: 1104160009

Sample ID: Burton #1

Soil Texture: silt loam

Area: Alluvial

Irrigated: No

Test Results

it	Value	Bermuda (pa
	5.80	Optimum
phorus, ppm	30.81	Very Low
sium, ppm	65.03	Very Low
um, ppm	994.84	Low
cesium, ppm	168.65	Medium
um, ppm	24.46	Optimum

FOUNDATION

	Form	Units: lb/Acre	Nitrogen	Phosphate	Potash
2					
nuda (pasture)	est. hyb. ber.		80-120	140	140
nuda (pasture)	establish comm.		80-120	120	120
nuda (pasture)	grazing		100-200	80	100
nuda (pasture)	hay comm.		200-300	120	240
nuda (pasture)	hay hyb. ber.		300-400	140	300

additional crop information please see (<http://www.agctr.lsu.edu/stpal/recsheets/P-210.rtf>)

If there are any questions about this report, please contact your local extension service office at (Telephone 225/687-5155). The extension office also receive a copy of this report.



Department of Agronomy
Soil Testing and Plant Analysis Lab
126 Madison B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261

Website: <http://www.agctr.lsu.edu/stpal>

Soil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004

Lab Number: 1504160009

Sample ID: Burton #1

Texture: N/A

Area: Alluvial

Irrigated: No

Test	Results	Interpretation	Low	Optimum	High
pH	1.23		< 0.20	0.20 - 0.25	> 0.25
N, ppm	117.52		< 2.50	2.50 - 4.50	> 4.50
P, ppm	48.33		< 2.00	2.00 - 4.00	> 4.00
K, ppm	1.32		< 0.50	0.50 - 1.25	> 1.25

If you have any questions about this report, please contact your local extension service office at (225) 687-5155. The extension office also receives a copy of this report.



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Soil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004
Lab Number: 1804160009
Sample ID: Burton #1
Texture: N/A
Area: Alluvial
Irrigated: No

Test	Results	Interpretation	Very Low	Low	Optimum	High	Very High
nt							
ppm	186.11	Very Low	< 301.00	301.00 - 601.00	601.00 - 1,001.00	1,001.00 - 1,500.00	> 1,500.00

If you have any questions about this report, please contact your local extension service office at telephone 225/687-5155). The extension office also receives a copy of this report.



Department of Agronomy
126 Maline B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261
Website: www.agctr.lsu.edu

Soil Test Results

Burton, R. L.
11698 Harris Connor Road
St. Francisville, LA 70775
West Feliciana

Date Received: 04/20/2004

Lab Number: 1104056010

Sample ID: #3

Soil Texture: silt loam

Area: Upland

Irrigated: No

OIL TEST RESULTS AND INTERPRETATIONS

	Results	Interpretation
Calcium, ppm	479.54	Very Low
Magnesium, ppm	81.14	Low
pH	4.95	Low
pH @ 1 Ton/Ac Lime	5.85	Optimum
pH @ 2 Ton/Ac Lime	6.38	Optimum
Phosphorus, ppm	24.78	Low
Potassium, ppm	100.57	Low
Sodium, ppm	11.75	Optimum

Nutrients Needed: lb/Acre

Crop	Form	Nitrogen	Phosphate	Potash
wheat	grain	80-90	60	60
wheat	grazing	160-200	80	90
wheat	grazing and grain	160-200	80	90

For additional crop information please see (<http://www.agctr.lsu.edu/sipal/rocsheets/C-100.rtf>)

If there are any questions about this report, please contact your local extension service office at (Telephone 225/635-3614). The extension office also receive a copy of this report.



Resample for CEC

Soil Testing and Plant Analysis Laboratory
Department of Agronomy
Louisiana State University
Baton Rouge, LA 70803
(225)578-1261
Website: www.agctr.lsu.edu/stpal

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Date Received: 12/15/2004

Lab Number: 1104160008

Sample ID: Burton #3

Soil Texture: silt loam

Area: Alluvial

Irrigated: No

Test Results

nt	Value	Bermuda (pa
	5.87	Optimum
phorus, ppm	116.32	Medium
ssium, ppm	71.84	Very Low
ium, ppm	1,185.53	Low
mesium, ppm	134.08	Low
ium, ppm	22.30	Optimum

RECOMMENDATION

	Form	Units: lb/Acre	Nitrogen	Phosphate	Potash
nuda (pasture)	est. hyb. ber.		80-120	80	140
nuda (pasture)	establish comm.		80-120	80	120
nuda (pasture)	grazing		100-200	40	100
nuda (pasture)	hay comm.		200-300	60	240
nuda (pasture)	hay hyb. ber.		300-400	80	300

additional crop information please see (<http://www.agctr.lsu.edu/stpal/recsheets/P-210.rtf>)

If there are any questions about this report, please contact your local extension service office at (Telephone 225/687-5155). The extension office also receive a copy of this report.



Department of Agronomy
Soil Testing and Plant Analysis Lab
126 Madison B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261
Website: <http://www.agctr.lsu.edu/stpal>

oil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004
Lab Number: 1504160008
Sample ID: Burton #3
Texture: N/A
Area: Alluvial
Irrigated: No

Test	Results	Interpretation	Low	Optimum	High
nt					
p, ppm	1.41		< 0.20	0.20 - 0.25	> 0.25
rpm	178.00		< 2.50	2.50 - 4.50	> 4.50
anese, ppm	103.07		< 2.00	2.00 - 4.00	> 4.00
ppm	2.63		< 0.50	0.50 - 1.25	> 1.25

For any questions about this report, please contact your local extension service office at (phone 225/687-5155). The extension office also receives a copy of this report.



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Soil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776
Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004

Lab Number: 1804160008

Sample ID: Burton #3

Texture: N/A

Area: Alluvial

Irrigated: No

Test	Results	Interpretation	Very Low	Low	Optimum	High	Very High
nt			< 301.00	301.00 - 601.00	601.00 - 1,001.00	1,001.00 - 1,500.00	> 1,500.00
ppm	221.70	Very Low					

If you have any questions about this report, please contact your local extension service office at (Telephone 225/687-5155). The extension office also receives a copy of this report.



Department of Agronomy and Environmental Management
104 Sturgis Hall - LSU
Baton Rouge, LA 70803
(225) 578-2110
Fax: (225) 578-1403
Web site: www.lsuagcenter.com

Soil Characterization Lab

Research and Extension Programs
Agriculture
Economic/Community Development
Environment/Natural Resources
Families/Nutrition/Health
4-H Youth Programs

Invoice # 041106
December 21, 2004

Jerry McDonald
3905 Hwy 75
St. Gabriel, LA 70776

Sample ID	Field Identification	Crop	CEC* (meq/100 g soil)
1104160001	Hamilton #5	Burmuda (pasture)	8.64
1104160002	Hamilton #6	Burmuda (pasture)	7.73
1104160003	Hamilton #8	Burmuda (pasture)	8.27
1104160004	Hamilton #9	Burmuda (pasture)	8.94
1104160005	Burton #15	Burmuda (pasture)	7.98
1104160006	Burton #11	Burmuda (pasture)	5.77
1104160007	Burton #10	Burmuda (pasture)	5.76
1104160008	Burton #3	Burmuda (pasture)	10.15
1104160009	Burton #1	Burmuda (pasture)	9.36

9.76 Site 117

* Ammonium acetate (pH 7.0) extraction (Soil Survey 1996).



SOIL TEST INFORMATION SHEET NO. P-210

Prepared by Extension Agronomist Edward Twidwell

Perennial Summer Pasture Grasses—

Bahia, Dallisgrass, Common and Hybrid Bermudas

1. These grasses grow over a wide range of soil pH values, but it is recommended that agricultural limestone be applied when the pH is below 5.0. If the sod is to be overseeded with ryegrass or clovers, the soil pH should be maintained at a pH of 5.8 or above. Where magnesium is medium or lower, use dolomitic limestone. When lime is not needed and magnesium is medium or lower, apply sulfate of potash-magnesia (Sul-Po-Mag or K Mag).

Establishing Perennial Summer Grasses

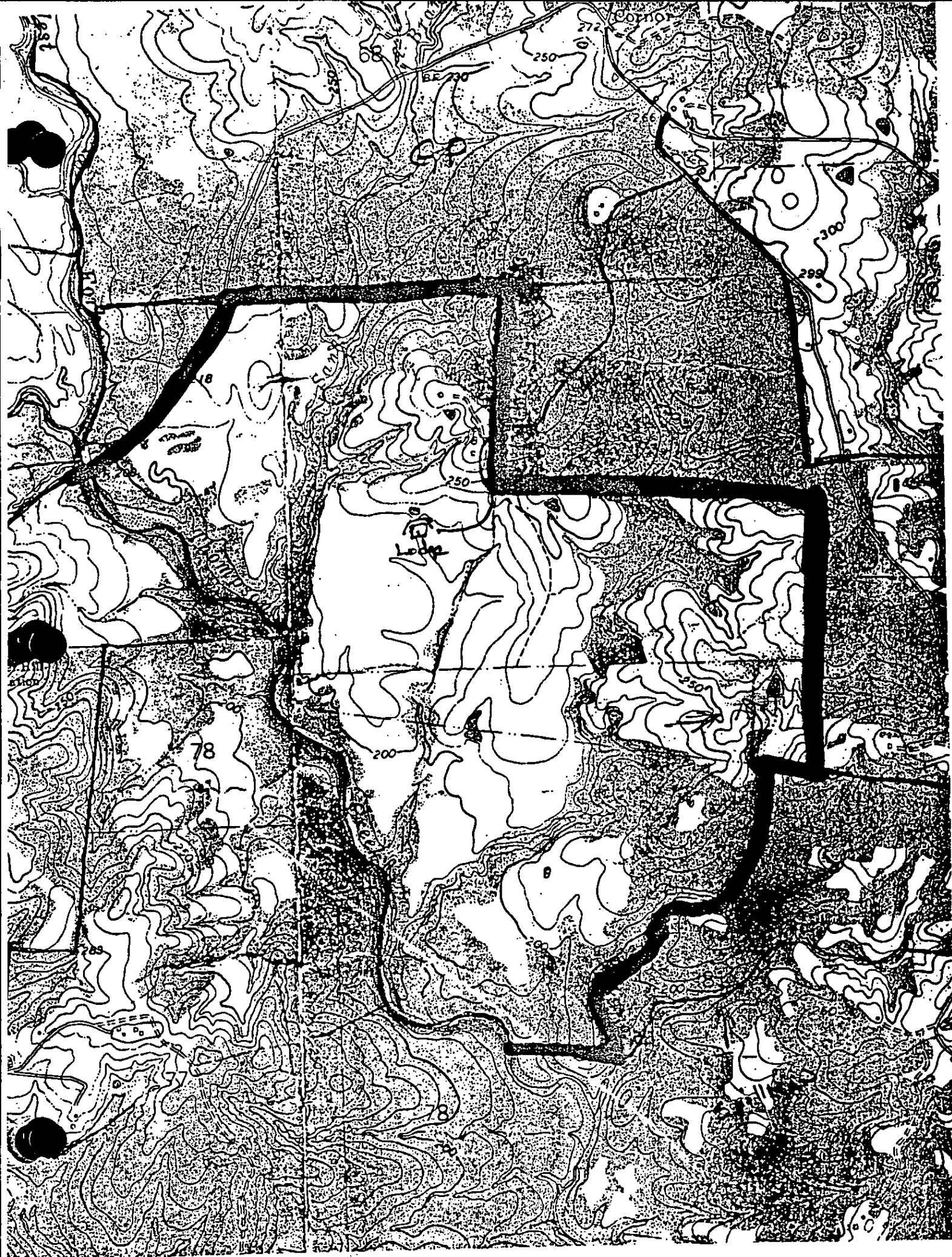
2. Recommended rates of phosphorus and potassium and 20-40 pounds of nitrogen per acre should be applied and incorporated into the soil before seeding or sprigging.
3. After seedlings emerge or sprigs start to grow, apply 40-60 pounds of nitrogen per acre. An additional 20-40 pounds of nitrogen may be needed in August or early September.

Maintaining Perennial Summer Grasses for Grazing

4. All the recommended rates of phosphorus and potassium and 60-80 pounds of nitrogen per acre should be applied in the spring soon after growth starts.
5. An additional 60-80 pounds of nitrogen will be needed in June. For fall grazing, 30-40 pounds of nitrogen may be needed in August or early September.

Bahia or Hybrid Bermudagrass for Hay

6. One-third to one-half of the recommended phosphorus and potassium and 80-100 pounds of nitrogen should be applied as soon as growth starts in the spring.
7. Apply 80-100 pounds of nitrogen after each cutting of hay (except the last) and one-third of the recommended phosphorus and potassium after the 1st and 2nd cutting or one-half after the 2nd cutting.
8. On uplands and soils that test low in sulfur, applying 10-20 pounds of sulfur per harvest as a sulfate may increase yields. It can be applied by using ammonium sulfate as part of the nitrogen application program or with a blend containing sulfur in the sulfate form.
9. Contact your county agent for additional information and help in your fertilization program. The agent also receives a copy of this report for the parish office files.



Two certain tracts or parcels of land containing 1044 acres, more or less, situated in Sections 71, 79 and 81, T1S, R2W, St Helena Meridian, Parish of West Feliciana, State of Louisiana, and more particularly described, shown and identified as follows:

Lot Number One (1) and Lot Number (2), as shown on the map or sketch of survey made by Rhea D'Armond Percy, Civil Engineer and Surveyor, which map or sketch is attached to the Act of Partition Between Kent S. Hewes and John C. Hewes passed on the 12th day of April, 1950, as appears by Notary Record 46, page 570, of the conveyance records of West Feliciana Parish, Louisiana, said lots being further described as follows, to wit:

LOT NUMBR ONE: A certain piece or parcel of land, together with all buildings and improvements thereon, and all the rights, ways, privileges and appurtenances thereunto belonging or in anywise appertaining, situated in the Parish of West Feliciana, State of Louisiana, containing five hundred and fifty (550) acres, more or less, and bounded on the north by lands now or formerly of the heirs of E.T. Merrick, on the east by land of the heirs of E.T. Merrick, or assigns and by Lot Number Two as hereinafter described, on the south by Lot Number Two hereinafter described, and on the west by the west prong of Thompson Creek; said parcel or tract of land being more particularly described, to-wit: beginning at an iron post on the east bank of the west prong of Thompson Creek, thence along the division line between lands of heirs of E.T. Merrick, or assigns and the land described herein, North 88degrees 3' East a distance of 1926.2 feet plus 323.5 feet for a total distance of 5161.2 feet to an old pine stump and iron pipe (formerly a bay tree corner), thence South 15 degrees 30' West a distance of 5586.00 feet to an iron pipe or post on the east bank of the west prong of Thompson Creek; thence up said creek and following the meanderings thereof to the point of beginning. Acquired by John C. Hewes in partition with Kent S Hewes, on the 12th day of April, 1950, as appears by Notary Record 46, page 570 of the conveyance records of West Feliciana Parish, Louisiana.

LOT NUMBER TWO: A certain piece of parcel of land situated in sections 71, 79, and 81, Township 1 South, Range 2 West, St Helens Meridian, Parish of West Feliciana, State of Louisiana, containing five hundred fifty (550) acres, more or less, and bounded on the north by lands of John C. Hewes shown as Lot Number One of the Subdivision of the Laurel Hill Plantation on a map of survey by Rhea D'Armond Percy dated November 25, 1949, recorded in Notarial Record Book 46, page 572, and by lands formerly of E.T. Merrick known as McCauseland Plantation, on the east by lands of J. Aubery Spillman, on the west by the west prong of Thompson Creek, said parcel being more particularly shown and described on the above mentioned map or survey as Lot Number Two.

Said Lot Number Two being the same property acquired by Kent S. Hewes in act of partition with John C. Hewes as appears in Notary Records Book 46, page 570, of the conveyance records of West Feliciana Parish, Louisiana and which property was later acquired by John C. Hewes dated October 13, 1958.

The property conveyed herein being the same property originally acquired by Phillip G Alley, Sr. and Emily O'Dwyer Alley by Act of Sale from John and Martha Hewes dated

July 9, 1987, recorded as original Number 36669 in COB 102, page 81, and sold to Parts Maintenance, Inc. by Sale with Assumption of Mortgage, filed as Original Number 38819 at COB 105, Page 250, then acquired by Act of Exchange between Phillip G. Alley, Sr. and Emily O'Dwyer Alley with Parts Maintenance, Inc. dated January 1, 1990, filed as original Number 42591 in COB 110, Page 343 of the records of the Clerk of Court for West Feliciana Parish, State of Louisiana.

RECAL II DISTRIBUTION INFORMATION

Farmer: Charles Hamilton
11003 Dewberry
St. Francisville, LA 70775
West Feliciana Parish

Phone: 225-635-4227

Site Location: 118
Sample ID #6
Section 41, R-2W, T-1S
Lab sample ID 1102009023/1104160002

No. of Acres: 1472 acres

Site Geology: _____

Crop Type: Hay Grazing

Source: LSU. Ag. Center

Date: 4/20/03
12/15/04

% Yield: _____

How Measured: _____

Other Chemicals Applied: _____

Loading Rate: 2.5 tons/acre

Source: La. Cooperative Ext.

Date: 5/7/03

Soil Analysis

pH 5.87
CEC 7.73 meq/100g

Sampled by: Charles Hamilton

Date: 4/20/03
12/15/04

RECAL II DISTRIBUTION INFORMATION

Sample ID #6
Lab # 110200 9023
LAB# 1104160003

Site Location:

Section 41

21 ER 362 R-3W, T-1S

Charles Hamilton
11003 Dewberry
St Francisville LA 70775
West Feliciana Parish

Phone: _____

No. of Acres: 1472

Site Geology: _____

Crop Type: Hay/Grazing

Source: LSU AC Center

Date: 5/7/03

% Yield: _____

How Measured: _____

Other Chemicals Applied: _____

Loading Rate: 2.5 Tons/ACRE

Source: LA Cooperative EXT

Date: 5/7/03

Soil Analyses

Before Application

After Application

CEC

5.87

7.73 mg/100g

Arsenic

Barium

Cadmium

Chromium

Copper

Lead

Mercury

Nickel

Selenium

Silver

Zinc

Moisture

Sampled by:

Charles Hamilton

5/7/03 and 12/15/04

4/20/03

NOTE: Staple analyses report with this sheet.

RECAL II Loading Rate Calculation

Farmer: Charles Hamilton

Site: 11003 Dewberry Section 41 R 2W, T15

Directions: 11003 Dewberry
St. Frances 70775

H: 5.87

Loading Rate: 2.5 Tons

Number of Acres: 1472

Pounds to ship: 7.36 MM @ 36000 #/bbl.

Trucks to ship: 204

Signature: JRM/Orr

Date: 6-1-03

DISTRIBUTION AGREEMENT
RECAL II

Agreement between Syngenta Crop Protection ("Seller") and _____
Charles Hamilton ("Buyer").

1. Seller agrees to sell and transfer to Buyer Recal II, (the "Product"), for a period from _____, 2003 through, 2004. Either party shall have the right to terminate this Agreement upon 30 days written notice.
2. Buyer agrees that it will use the Product only as a soil amendment agent in Buyer's agricultural business and Buyer will not resell the product.
3. Buyer shall pay the Seller \$1.00 per truckload to defray cost of transportation incurred by Seller in delivering the Product to Buyer. Payment shall be due within thirty (30) days of the date of the invoice.
4. **SELLER MAKES NO EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**
In no case shall Seller be liable for consequential, special or indirect damages resulting from the use or handling of the Product.
5. Buyer agrees to comply with all federal, state and local laws and regulations in the use and handling of the product, including disposal of any containers or excess Product.
6. Title shall pass from Seller to Buyer upon delivery of the Product to Buyer.
7. This Agreement may not be assigned by either party except with the prior written consent of the other party.
8. No modification of the Agreement shall be effective unless in writing and signed by the parties hereto.
9. Any questions under this Agreement shall be interpreted in accordance with the laws of the State of Louisiana as if this Agreement were made and to be performed in that state.
10. Before delivery, Buyer must read and sign a Method of Handling Sheet. Buyer agrees to handle and use the Product in accordance with each Method of Handling Sheet.

Syngenta Crop Protection, Inc.

[Signature]

Signature and Date

Buyer

[Signature]

Signature and Date



METHOD OF HANDLING
RECAL II

Distribution Agreement must be signed before delivery.

HANDLING

1. Wear the following when handling Recal II:
 - goggles
 - rubber gloves
 - rubber boots
 - trousers and long sleeve shirts
2. Wash with large amounts of water on any body part exposed to Recal II.
3. Read Material Safety Data Sheet before application.
4. Recall II should be distributed as soon as possible. Cover undistributed Recall II with plastic to minimize exposure to rain and reduce Recall II runoff contamination.
5. Remove any plastic, including delivery trailer liner, before distributing Recall II.

DISTRIBUTION

6. Do not exceed four tons per acre.
7. The Recal II spreader will be made available by Syngenta.
8. Farmer will be responsible for spreader maintenance.
9. Transportation of the spreader will be the responsibility of the farmer who used it last.
10. Spreader requires use of a front-end loader.
11. Syngenta will deliver one to two truck loads per day at about 40,000 pounds per truck.



MISCELLANEOUS

12. Soil samples will be taken before distribution and semi-annually thereafter by the Cooperative Extension Services.
13. The following analysis are required:
 - soil profile (30 in)
 - pH
 - Cation Exchange Capacity (CEC)
 - Heavy metals
14. A check strip (non-treated area) must be flagged.
15. The following information is to be reported to the Extension Services regarding the treated area:
 - Number of acres.
 - Crops to be grown.
 - Yield data of previous crop.
 - Yield data of current crop.
 - ⇒ Row crop - at harvest
 - ⇒ Pasture - measure using cages
 - Amount and nature of any other chemicals used in previous and current year.

Syngenta Crop Protection, Inc.

Buyer

Signature and Date

Signature and Date

MATERIAL SAFETY DATA SHEET

ST. GABRIEL NO. 1095

Novartis Crop Protection Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
Novartis: 1-800-888-8372
CHEMTREC: 1-800-424-9300

1. CHEMICAL IDENTIFICATION

Product Name: RECAL II

Product No.: Not Available

EPA Signal Word: Not Applicable

Active Ingredient(%): Calcium Carbonate (65-80%) CAS No.: 471-34-1

Chemical Name: Calcium Carbonate

Chemical Class: Inorganic Mineral

2. COMPOSITION/INFORMATION ON INGREDIENTS

	OSHA	ACGIH	Other	NTP/IARC/OSHA Carcinogen
<u>Material</u>	<u>PEL</u>	<u>TLV</u>		
Calcium Sulfate	15 mg/m3 (Total Dust)/ 5 mg/m3 (Respirable)	10 mg/m3 (Total Dust)	Not Established	No
Calcium Hydroxide	15 mg/m3 (Total Dust) 5 mg/m3 (Respirable)	5 mg/m3 (Total Dust)	Not Established	
Calcium Carbonate (65-80%)	15 mg/m3 (Total Dust) 5 mg/m3 (Respirable)	10 mg/m3 (Total Dust)	Not Established	No

3. HAZARDS IDENTIFICATION

Notes to Physician

There is no specific antidote if this product is ingested.

If a large amount has been ingested and emesis is inadequate, lavage stomach.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Symptoms of Acute Exposure

Prolonged or repeated contact with skin may result in drying and redness.

Hazardous Decomposition Products

SOx from the decomposition of calcium sulfate.

Physical Properties

Appearance: Tan to Gray Powder Cake

Odor: Mild Odor

Unusual Fire, Explosion and Reactivity Hazards

None Known

4. FIRST AID MEASURES

If poisoning is suspected, immediately contact a physician, the nearest hospital, or the nearest Poison Control Center. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Ingestion: If victim is fully conscious, give 1 or 2 glasses of water to drink and induce vomiting. Never give anything by mouth to an unconscious person.

Eye Contact: Immediately rinse eyes with a large amount of running water. Hold eye lids apart to rinse the entire surface of the eyes and lids. Do not apply any medicating agents except on the advice

of a physician.

Contact:

Wash with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except on the advice of a physician. Remove contaminated clothing and decontaminate prior to use.

Inhalation:

Move victim from contaminated area to fresh air. Apply artificial respiration if necessary, preferably by mechanical means.

Notes to Physician

There is no specific antidote if this product is ingested.

If a large amount has been ingested and emesis is inadequate, lavage stomach.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Medical Condition Likely to be Aggravated by Exposure

None Known

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):

Not Applicable

Flammable Limits (% in Air):

Lower: %; Upper: % Not Applicable

Autoignition Temperature:

Not Available

Flammability:

Not Flammable

Unusual Fire, Explosion and Reactivity Hazards

None Known

In Case of Fire

Use dry chemical foam, or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated building, area, and equipment until decontaminated.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Wear chemical safety glasses with side shields or chemical goggles, rubber gloves, rubber boots, long-sleeved shirt, long pants, head covering, and a NIOSH-approved dust respirator. For small spills, sweep up, keeping dust to a minimum, and place in an approved chemical container. Wash the spill area with water containing a strong detergent, absorb with pet litter or other absorbent material, sweep up and place in a chemical container. Seal the container and handle in an approved manner. Flush the area with water to remove any residue. Do not allow wash water to contaminate water supplies.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of the reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco usage, and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RECAL II

- Ingestion:** Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.
- Eye Contact:** To avoid eye contact, wear safety glasses with side shields or chemical goggles.
- Skin Contact:** To avoid skin contact, wear rubber gloves, rubber boots, long-sleeved shirt, long pants and a head covering.
- Inhalation:** To avoid breathing dust, wear a NIOSH-approved dust respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance:** Tan to Gray Powder Cake
- Odor:** Mild Odor
- Melting Point:** Not Available
- Boiling Point:** Not Applicable
- Specific Gravity/Density:** Not Available
- pH:** Not Available

Solubility in H₂O

Calcium Carbonate : Not Available

Vapor Pressure

Calcium Carbonate : Not Available

10. STABILITY AND REACTIVITY

RECAL-II

Reactivity

Stability: Stable
Hazardous Polymerization: Will Not Occur
Conditions to Avoid: None Known

Hazardous Decomposition Products

SOx from the decomposition of calcium sulfate.

11. TOXICOLOGICAL INFORMATIONAcute Toxicity/Irritation Studies

Ingestion:	<u>Not Available</u>	
	Oral LD50 (Rat):	Not Available
Dermal:	<u>Not Available</u>	
	Dermal LD50 (Rabbit)	Not Available
Inhalation:	<u>Not Available</u>	
	Inhalation LC50 (Rat)	Not Available
Eye Contact:	Not Available	
Skin Contact:	Not Available	
Skin Sensitization:	Not Available	

Mutagenic Potential

Calcium Carbonate : None Observed

Reproductive Hazard Potential

5/13/2003

RECAL II

Calcium : None Observed
Carbonate

Chronic/Subchronic Toxicity Studies

Calcium : None Observed
Carbonate

Carcinogenic Potential

Calcium : None Observed
Carbonate

Other Toxicity Information

Not Available

Toxicity of Other Components

Calcium Hydroxide

Exposure may irritate eyes, skin or mucous membranes.

Calcium Sulfate

Exposure may irritate eyes, skin or mucous membranes.

Target Organs

Active Ingredients

Calcium : Eyes and Skin
Carbonate

Inert Ingredients

Calcium : Eyes and Skin
Hydroxide

Calcium : Eyes and Skin
Sulfate

12. ECOLOGICAL INFORMATION**Summary of Effects**

Calcium Carbonate:

Not Available

Eco-Acute ToxicityCalcium
Carbonate:

Not Available

Eco-Chronic ToxicityCalcium
Carbonate:

Not Available

Environmental Fate

Calcium Carbonate:

Not Available

13. DISPOSAL CONSIDERATION**Disposal**

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste:

Not Applicable

Listed Waste:

Not Applicable

ECAL II

14. TRANSPORT INFORMATION**DOT Classification:**

Not Applicable; No Label or Placard Required

B/L Freight Classification

Chemicals, N.O.I.

International Transportation

Not Applicable

15. REGULATORY INFORMATION**SARA Title III Classification**

Section 311/312: Acute Health Hazard

Section 313
chemical(s): Not Applicable**Proposition 65**

Not Applicable

CERCLA Reportable Quantity (RQ)

None

RCRA Classification

Not Applicable

TSCA Status

On TSCA Inventory

5/13/2003

16. OTHER INFORMATION**NFPA Hazard Ratings**

Health:	1	0	Least
Flammability:	0	1	Slight
Reactivity:	0	2	Moderate
		3	High
		4	Severe

Questions concerning the safe handling of the product should be referred to:

Industrial Health

1-800-334-9481

Issued 9/29/88
Date:

Revised 4/1/97
Date:

Supersedes: 10/4/96

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVP#: Not Available

MSDS's are valid for 7 days after printdate. Other printed documents become invalid 24 hrs after printdate unless otherwise specified in procedure #CAT00001.

RECAL IITM

SOIL AMENDMENT AGENT

Syngenta Crop Protection, Inc.
P.O. Box 11
St. Gabriel, LA 70776



Cooperative Extension Service
Division of Plant Science
Louisiana Agricultural Experiment Station
Department of Agronomy
126 Madison B. Sturgis Hall - LSU
(225)578-1261
Website: www.agctr.lsu.edu

Oil Test Results

Hamilton, Charles
11003 Dewberry
St. Francisville, LA 70775
West Feliciana

Lab Number: 1102009023
Sample ID: #6
Soil Texture: silt loam
Area: Alluvial
Irrigated: No

TEST RESULTS AND INTERPRETATIONS

	Results	Interpretation
Calcium, ppm	1,173.10	Low
Magnesium, ppm	334.27	Very High
	5.87	Optimum
Phosphorus, ppm	44.08	Very Low
Potassium, ppm	270.06	Very High
Sulfur, ppm	127.25	Optimum

1472

Nutrients Needed: lb/Acre

	Form	Nitrogen	Phosphate	Potash
grass (pasture)	est. hyb. ber.	80-120	140	0
bermudagrass (pasture)	establish comm.	80-120	120	0
bermudagrass (pasture)	grazing	100-200	80	0
bermudagrass (pasture)	hay comm.	200-300	120	0
bermudagrass (pasture)	hay hyb. ber.	300-400	140	0

CONTACT YOUR COUNTY AGENT (TELEPHONE 225/635-3614) IF YOU HAVE ANY QUESTIONS ABOUT THIS REPORT. THE AGENT ALSO RECEIVES A COPY OF THIS REPORT AND MAY CONTACT YOU TO DISCUSS IT.



08 1472

Resample for CEC

Department of Agronomy
Louisiana State University
Baton Rouge, LA 70803
(225)578-1261
Website: www.agctr.lsu.edu/stpal

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Date Received: 12/15/2004
Lab Number: 1104160002
Sample ID: Hamilton #6
Soil Texture: fine sandy loam
Area: Alluvial
Irrigated: No

Test Results

it	Value	Bermuda (pa
	5.35	Low
phorus, ppm	31.78	Very Low
sium, ppm	103.67	Medium
ium, ppm	793.33	Low
nesium, ppm	230.00	Very High
um, ppm	22.56	Optimum

FOUNDATION

	Form	Units: lb/Acre	Nitrogen	Phosphate	Potash
nuda (pasture)	est. hyb. ber.		80-120	140	80
nuda (pasture)	establish comm.		80-120	120	80
nuda (pasture)	grazing		100-200	80	40
nuda (pasture)	hay comm.		200-300	120	120
nuda (pasture)	hay hyb. ber.		300-400	140	100

Expected pH with adding Lime
1 Ton
6.64
High

additional crop information please see (<http://www.agctr.lsu.edu/stpal/recsheets/P-210.rtf>)

If there are any questions about this report, please contact your local extension service office at (Telephone 225/687-5155). The extension office also receive a copy of this report.



Department of Agronomy
Soil Testing and Plant Analysis Lab
126 Madison B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261
Website: <http://www.agctr.lsu.edu/stpal>

Soil Test Results

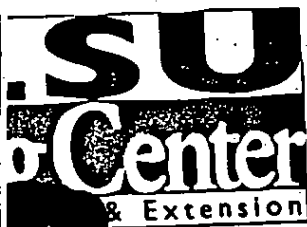
McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004
Lab Number: 1504160002
Sample ID: Hamilton #6
Texture: N/A
Area: Alluvial
Irrigated: No

Test	Results	Interpretation	Low	Optimum	High
pH	0.71		< 0.20	0.20 - 0.25	> 0.25
N, ppm	236.33		< 2.50	2.50 - 4.50	> 4.50
P, ppm	41.90		< 2.00	2.00 - 4.00	> 4.00
K, ppm	1.71		< 0.50	0.50 - 1.25	> 1.25

If you have any questions about this report, please contact your local extension service office at Telephone 225/687-5155. The extension office also receives a copy of this report.



Department of Agronomy
Soil Testing and Plant Analysis Lab
126 Madison B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261
Website: <http://www.agctr.lsu.edu/stpal>

Soil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776
Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004

Lab Number: 1804160002

Sample ID: Hamilton #6

Texture: N/A

Area: Alluvial

Irrigated: No

Test	Results	Interpretation	Very Low	Low	Optimum	High	Very High
nt			< 301.00	301.00 - 601.00	601.00 - 1,001.00	1,001.00 - 1,500.00	> 1,500.00
ppm	201.09	Very Low					

If you have any questions about this report, please contact your local extension service office at (225) 687-5155. The extension office also receives a copy of this report.



Department of Agronomy and Environmental Management
104 Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-2110
Fax: (225)578-1403
Web site: www.lsuagcenter.com

Research and Extension Programs
Agriculture
Economic/Community Development
Environment/Natural Resources
Families/Nutrition/Health
4-H Youth Programs

Soil Characterization Lab

Invoice # 041106
December 21, 2004

Jerry McDonald
3905 Hwy 75
St. Gabriel, LA 70776

Sample ID	Field Identification	Crop	CEC* (meq/100 g soil)
1104160001	Hamilton #5	Burmuda (pasture)	8.64
1104160002	Hamilton #6	Burmuda (pasture)	7.73
1104160003	Hamilton #8	Burmuda (pasture)	8.27
1104160004	Hamilton #9	Burmuda (pasture)	8.94
1104160005	Burton #15	Burmuda (pasture)	7.98
1104160006	Burton #11	Burmuda (pasture)	5.77
1104160007	Burton #10	Burmuda (pasture)	5.76
1104160008	Burton #3	Burmuda (pasture)	10.15
1104160009	Burton #1	Burmuda (pasture)	9.36

* Ammonium acetate (pH 7.0) extraction (Soil Survey 1996).



SOIL TEST INFORMATION SHEET NO. P-210

Prepared by Extension Agronomist Edward Twidwell

Perennial Summer Pasture Grasses— Bahia, Dallisgrass, Common and Hybrid Bermudas

1. These grasses grow over a wide range of soil pH values, but it is recommended that agricultural limestone be applied when the pH is below 5.0. If the sod is to be overseeded with ryegrass or clovers, the soil pH should be maintained at a pH of 5.8 or above. Where magnesium is medium or lower, use dolomitic limestone. When lime is not needed and magnesium is medium or lower, apply sulfate of potash-magnesia (Sul-Po-Mag or K Mag).

Establishing Perennial Summer Grasses

2. Recommended rates of phosphorus and potassium and 20-40 pounds of nitrogen per acre should be applied and incorporated into the soil before seeding or sprigging.
3. After seedlings emerge or sprigs start to grow, apply 40-60 pounds of nitrogen per acre. An additional 20-40 pounds of nitrogen may be needed in August or early September.

Maintaining Perennial Summer Grasses for Grazing

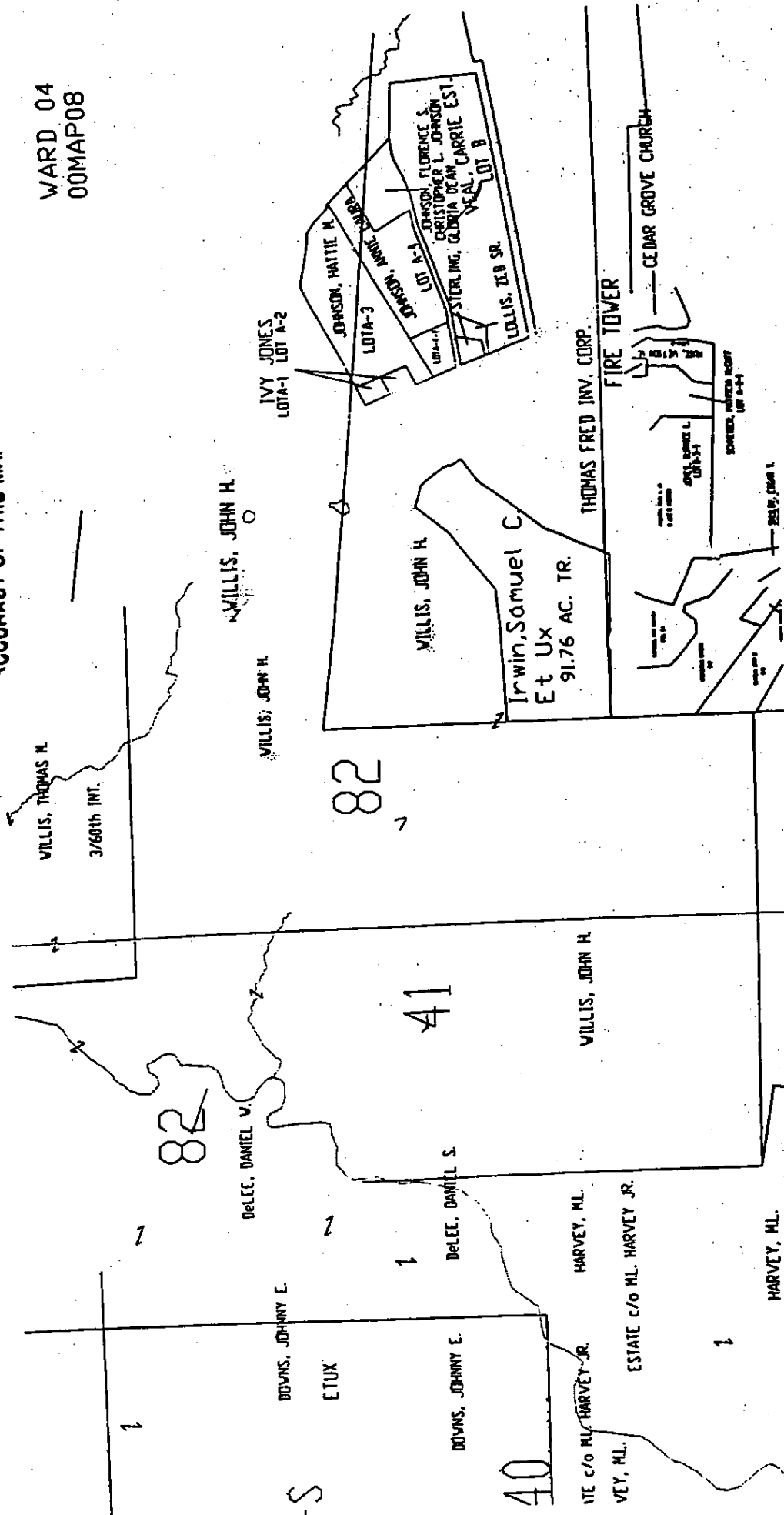
4. All the recommended rates of phosphorus and potassium and 60-80 pounds of nitrogen per acre should be applied in the spring soon after growth starts.
5. An additional 60-80 pounds of nitrogen will be needed in June. For fall grazing, 30-40 pounds of nitrogen may be needed in August or early September.

Bahia or Hybrid Bermudagrass for Hay

6. One-third to one-half of the recommended phosphorus and potassium and 80-100 pounds of nitrogen should be applied as soon as growth starts in the spring.
7. Apply 80-100 pounds of nitrogen after each cutting of hay (except the last) and one-third of the recommended phosphorus and potassium after the 1st and 2nd cutting or one-half after the 2nd cutting.
8. On uplands and soils that test low in sulfur, applying 10-20 pounds of sulfur per harvest as a sulfate may increase yields. It can be applied by using ammonium sulfate as part of the nitrogen application program or with a blend containing sulfur in the sulfate form.
9. Contact your county agent for additional information and help in your fertilization program. The agent also receives a copy of this report for the parish office files.

WEST FELICIANA PARISH TAX
 ASSESSOR'S OFFICE MAKES
 NO CLAIMS AND WILL ACCEPT
 NO LIABILITY AS TO THE
 ACCURACY OF THIS MAP

WARD 04
 00MAP08



BEST COPY OF THE NEXT 02 PAGES

Lot 2

DeLaet Daniel W.

82

Scott

Creek

R 3 V

R 2 V

R2

Willis, John H.

Willis, John H. (3/80th Int.)

Willis, Thomas H. (8/80th Int.)

Z

Eulaerts, Victoria Mary

R2W

T 1 S

T 2 S

s, Victoria Mary

RECAL II DISTRIBUTION INFORMATION

Farmer: Charles Hamilton
11003 Dewberry
St. Francisville, LA 70775
West Feliciana Parish

Site Location: 119
Sample ID #8 and 9
Section 54, R-3W, T-1S
Lab sample ID 1102009024/1104160003
Lab sample ID 1102009025/1104160004

Phone: 225-635-4227

No. of Acres: 2003 acres

Site Geology: _____

Crop Type: Hay Grazing Source: LSU. Ag. Center Date: 5/7/03

% Yield: _____

How Measured: _____

Other Chemicals Applied: _____

Loading Rate: 2.5 tons/acre Source: La. Cooperative Ext. Date: 5/7/03

Soil Analysis

pH 5.43
CEC 8.61 meq/100g

Sampled by: Charles Hamilton

Date: 4/20/03
12/15/04

RA# Site # 119

UP/DELIVERY

SYNGENTA CROP PROTECTION, INC.
P.O. Box 11, 4200 Gelgy Access Rd. / Hwy. 30
St. Gabriel, La. 70776
Area Code 225-642 1100

☐ CREDIT DUE *Part 1*

☐ CALL TAG *Parrot*
EB

☐ CREDIT DUE
☐ CALL TAG

Section 5.4 *Corrected*
RRB
~~21 FR 4W~~ R-3W, T-15

Sample ID# 8

Lab # 1102009024

~~LAB # 1104160003~~

HIP TO: _____
PHYSICAL ADDRESS REQUIRED
O P O BOX _____

Hamilton, Charles

11003 Dewberry

St. Francisville LA 70775

West Feliciana Parish

1/CHARGE #:	SHIP VIA	<input type="checkbox"/> COLLECT <input checked="" type="checkbox"/> PREPAID
-------------	----------	--

EIGHT:	B/L # <input type="checkbox"/> PK LST # <input type="checkbox"/> INV # <input type="checkbox"/>	DATE SHIPPED:
--------	---	---------------

[illegible]

INSURE ☐ YES ☐ NO DECLARED VALUE \$

REASON FOR SHIPMENT	
1	OTHER

DOES NOT MEET SPEC ☐ NONAUTHORIZED RECEIPT ☐ REPAIR (T&M) ☐ OTHER _____


LOANER/SAMPLE ☐ PREVENTATIVE MNT ☐ RETURN FOR DEPOSIT ☐


OVER SHIPMENT ☐ RECEIVED DAMAGED ☐ WARRANTY REPAIR ☐

RENTAL RETURN ☐ ORDERED WRONG ☐ CALIBRATE ☐

NOTES PH Adjustment of Soil

SYNGENTA AUTHORIZATION

CONSIGNEE SIGNATURE: 

DATE: 

WHITE - Packing list CANARY - Purchasing PINK - Receiving GOLDENROD - Guard

RECAL II DISTRIBUTION INFORMATION

SITE 119
part 1

Charles Hamilton
11003 Dewberry
St. Francisville LA 70785
West Feliciana Parish

Site Location:
Section 54
21 FR for R-3W, T-1S
Sample ID # 8
Lab # 1102009024
hrs # 110416002
No. of Acres: 876

Phone: _____

Site Geology: _____ Date: 5/7/03

Crop Type: Hay/GRAZING Source: LSU A&E Center

% Yield: _____ How Measured: _____

Other Chemicals Applied: _____

Loading Rate: 2.5 Tons/acre Source: LA Corporation EXT. Date: 5/7/03

<u>Soil Analyses</u>	<u>Before Application</u>	<u>After Application</u>
CEC	<u>5.46</u>	_____
Arsenic	<u>8.27 mg/100</u>	_____
Barium	_____	_____
Cadmium	_____	_____
Chromium	_____	_____
Copper	_____	_____
Lead	_____	_____
Mercury	_____	_____
Nickel	_____	_____
Selenium	_____	_____
Silver	_____	_____
Zinc	_____	_____
Moisture	_____	_____
Sampled by:	<u>Charles Hamilton</u>	_____
	<u>4/20/03 and 12/15/04</u>	_____

NOTE: Staple analyses report with this sheet.

RECAL II DISTRIBUTION INFORMATION

SITE 119
PART 2

Owner: CHARLES HON. HON
11003 Dewberry
7 Francville LA 70775
West Feliciana Parish

Site Location: Sec 54, 2118400 R-3W, T-1S
Sample ID # 9
Lab # 1102009025/1104160004

Phone: _____

No. of Acres: 1187

Site Geology: _____

Crop Type: Hay/Grazing Source: LSU Ag Center Date: 5/7/03

% Yield: _____ How Measured: _____

Other Chemicals Applied: _____

Loading Rate: 2.5 Tons/acre Source: LSU Cooperative Date: 5/7/03

Soil Analyses	Before Application	After Application
CEC	<u>5.41</u>	_____
Arsenic	<u>8.94 mg/100g</u>	_____
Barium	_____	_____
Cadmium	_____	_____
Chromium	_____	_____
Copper	_____	_____
Lead	_____	_____
Mercury	_____	_____
Nickel	_____	_____
Selenium	_____	_____
Silver	_____	_____
Zinc	_____	_____
Moisture	<u>Charles Hon. Hon</u>	_____
Sampled by:	<u>4/20/03 AND 12/15/04</u>	_____
Date:	_____	_____

NOTE: Staple analyses report with this sheet.

RECAL II Loading Rate Calculation

Farmer: Charles Hamilton

Site: 11003 Dewberry Section 54 R-34 T 15

Directions: 11003 Dewberry
St Francisville 70775

mi: 5.43

Loading Rate: 2.5 Tons

Number of Acres: 2003

Pounds to ship: 1.002 MM 360000/1000

Trucks to ship: 278 to site 119

Signature: [Signature]

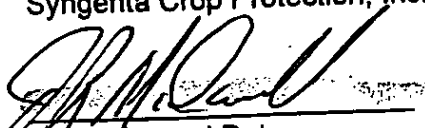
Date: 6-1-03

DISTRIBUTION AGREEMENT
RECAL II

Agreement between Syngenta Crop Protection ("Seller") and _____
Charles Hamilton ("Buyer").

1. Seller agrees to sell and transfer to Buyer Recal II, (the "Product"), for a period from _____, 2003 through, 2004 Either party shall have the right to terminate this Agreement upon 30 days written notice.
2. Buyer agrees that it will use the Product only as a soil amendment agent in Buyer's agricultural business and Buyer will not resell the product.
3. Buyer shall pay the Seller \$1.00 per truckload to defray cost of transportation incurred by Seller in delivering the Product to Buyer. Payment shall be due within thirty (30) days of the date of the invoice.
4. **SELLER MAKES NO EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**
In no case shall Seller be liable for consequential, special or indirect damages resulting from the use or handling of the Product.
5. Buyer agrees to comply with all federal, state and local laws and regulations in the use and handling of the product, including disposal of any containers or excess Product.
6. Title shall pass from Seller to Buyer upon delivery of the Product to Buyer.
7. This Agreement may not be assigned by either party except with the prior written consent of the other party.
8. No modification of the Agreement shall be effective unless in writing and signed by the parties hereto.
9. Any questions under this Agreement shall be interpreted in accordance with the laws of the State of Louisiana as if this Agreement were made and to be performed in that state.
10. Before delivery, Buyer must read and sign a Method of Handling Sheet. Buyer agrees to handle and use the Product in accordance with each Method of Handling Sheet.

Syngenta Crop Protection, Inc.



Signature and Date

Buyer



Signature and Date



METHOD OF HANDLING
RECAL II

Distribution Agreement must be signed before delivery.

HANDLING

1. Wear the following when handling Recal II:
 - goggles
 - rubber gloves
 - rubber boots
 - trousers and long sleeve shirts
2. Wash with large amounts of water on any body part exposed to Recal II.
3. Read Material Safety Data Sheet before application.
4. Recal II should be distributed as soon as possible. Cover undistributed Recal II with plastic to minimize exposure to rain and reduce Recal II runoff contamination.
5. Remove any plastic, including delivery trailer liner, before distributing Recal II.

DISTRIBUTION

6. Do not exceed four tons per acre.
7. The Recal II spreader will be made available by Syngenta.
8. Farmer will be responsible for spreader maintenance.
9. Transportation of the spreader will be the responsibility of the farmer who used it last.
10. Spreader requires use of a front-end loader.
11. Syngenta will deliver one to two truck loads per day at about 40,000 pounds per truck.

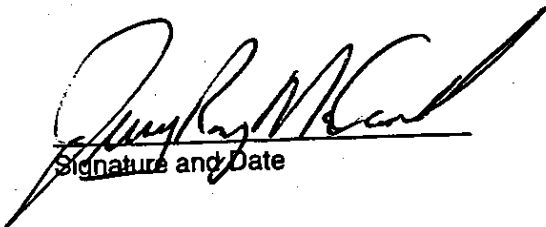


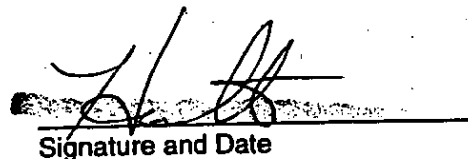
MISCELLANEOUS

12. Soil samples will be taken before distribution and semi-annually thereafter by the Cooperative Extension Services.
13. The following analysis are required:
 - soil profile (30 in)
 - pH
 - Cation Exchange Capacity (CEC)
 - Heavy metals
14. A check strip (non-treated area) must be flagged.
15. The following information is to be reported to the Extension Services regarding the treated area:
 - Number of acres.
 - Crops to be grown.
 - Yield data of previous crop.
 - Yield data of current crop.
 - ⇒ Row crop - at harvest
 - ⇒ Pasture - measure using cages
 - Amount and nature of any other chemicals used in previous and current year.

Syngenta Crop Protection, Inc.

Buyer


Signature and Date


Signature and Date

-RECAL II

MATERIAL SAFETY DATA SHEET

ST. GABRIEL NO. 1095

Novartis Crop Protection Inc.

Post Office Box 18300

Greensboro, NC 27419

In Case of Emergency, Call

Novartis: 1-800-888-8372

CHEMTREC: 1-800-424-9300

1. CHEMICAL IDENTIFICATION

Product Name: RECAL II

Product
No.:Not
Available

EPA Signal Word: Not Applicable

Active Ingredient(%): Calcium Carbonate (65-80%) CAS No.: 471-34-1

Chemical Name: Calcium Carbonate

Chemical Class: Inorganic Mineral

2. COMPOSITION/INFORMATION ON INGREDIENTS

	OSHA	ACGIH	Other	NTP/IARC/OSHA Carcinogen
<u>Material</u>	<u>PEL</u>	<u>TLV</u>		
Calcium Sulfate	15 mg/m3 (Total Dust)/ 5 mg/m3 (Respirable)	10 mg/m3 (Total Dust)	Not Established	No
Calcium Hydroxide	15 mg/m3 (Total Dust) 5 mg/m3 (Respirable)	5 mg/m3 (Total Dust)	Not Established	
Calcium Carbonate (65-80%)	15 mg/m3 (Total Dust) 5 mg/m3 (Respirable)	10 mg/m3 (Total Dust)	Not Established	No

3. HAZARDS IDENTIFICATION

Notes to Physician

There is no specific antidote if this product is ingested.

If a large amount has been ingested and emesis is inadequate, lavage stomach.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Symptoms of Acute Exposure

Prolonged or repeated contact with skin may result in drying and redness.

Hazardous Decomposition Products

SOx from the decomposition of calcium sulfate.

Physical Properties

Appearance: Tan to Gray Powder Cake

Odor: Mild Odor

Unusual Fire, Explosion and Reactivity Hazards

None Known

4. FIRST AID MEASURES

If poisoning is suspected, immediately contact a physician, the nearest hospital, or the nearest Poison Control Center. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Ingestion: If victim is fully conscious, give 1 or 2 glasses of water to drink and induce vomiting. Never give anything by mouth to an unconscious person.

Eye Contact: Immediately rinse eyes with a large amount of running water. Hold eye lids apart to rinse the entire surface of the eyes and lids. Do not apply any medicating agents except on the advice

of a physician.

Skin Contact: Wash with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except on the advice of a physician. Remove contaminated clothing and decontaminate prior to use.

Inhalation: Move victim from contaminated area to fresh air. Apply artificial respiration if necessary, preferably by mechanical means.

Notes to Physician

There is no specific antidote if this product is ingested.

If a large amount has been ingested and emesis is inadequate, lavage stomach.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Medical Condition Likely to be Aggravated by Exposure

None Known

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	Not Applicable
Flammable Limits (% in Air):	Lower: %; Upper: % Not Applicable
Autoignition Temperature:	Not Available
Flammability:	Not Flammable

Unusual Fire, Explosion and Reactivity Hazards

None Known

In Case of Fire

Use dry chemical foam, or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated building, area, and equipment until decontaminated.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Wear chemical safety glasses with side shields or chemical goggles, rubber gloves, rubber boots, long-sleeved shirt, long pants, head covering, and a NIOSH-approved dust respirator. For small spills, sweep up, keeping dust to a minimum, and place in an approved chemical container. Wash the spill area with water containing a strong detergent, absorb with pet litter or other absorbent material, sweep up and place in a chemical container. Seal the container and handle in an approved manner. Flush the area with water to remove any residue. Do not allow wash water to contaminate water supplies.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of the reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco usage, and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Ingestion:** Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.
- Eye Contact:** To avoid eye contact, wear safety glasses with side shields or chemical goggles.
- Skin Contact:** To avoid skin contact, wear rubber gloves, rubber boots, long-sleeved shirt, long pants and a head covering.
- Inhalation:** To avoid breathing dust, wear a NIOSH-approved dust respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance:** Tan to Gray Powder Cake
- Odor:** Mild Odor
- Melting Point:** Not Available
- Boiling Point:** Not Applicable
- Specific Gravity/Density:** Not Available
- pH:** Not Available

Solubility in H₂O

Calcium Carbonate : Not Available

Vapor Pressure

Calcium Carbonate : Not Available

10. STABILITY AND REACTIVITY

Reactivity

Stability: Stable
 Hazardous Polymerization: Will Not Occur
 Conditions to Avoid: None Known

Hazardous Decomposition Products

SOx from the decomposition of calcium sulfate.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies

Ingestion:	<u>Not Available</u>	
	Oral LD50 (Rat):	Not Available
Dermal:	<u>Not Available</u>	
	Dermal LD50 (Rabbit)	Not Available
Inhalation:	<u>Not Available</u>	
	Inhalation LC50 (Rat)	Not Available
Eye Contact:	Not Available	
Skin Contact:	Not Available	
Skin Sensitization:	Not Available	

Mutagenic Potential

Calcium Carbonate : None Observed

Reproductive Hazard Potential

Calcium : None Observed
Carbonate

Chronic/Subchronic Toxicity Studies

Calcium : None Observed
Carbonate

Carcinogenic Potential

Calcium : None Observed
Carbonate

Other Toxicity Information

Not Available

Toxicity of Other Components

Calcium Hydroxide

Exposure may irritate eyes, skin or mucous membranes.

Calcium Sulfate

Exposure may irritate eyes, skin or mucous membranes.

Target Organs

Active Ingredients

Calcium : Eyes and Skin
Carbonate

Inert Ingredients

Calcium : Eyes and Skin
Hydroxide

Calcium : Eyes and Skin
Sulfate

12. ECOLOGICAL INFORMATION**Summary of Effects**

Calcium Carbonate:

Not Available

Eco-Acute ToxicityCalcium
Carbonate:

Not Available

Eco-Chronic ToxicityCalcium
Carbonate:

Not Available

Environmental Fate

Calcium Carbonate:

Not Available

13. DISPOSAL CONSIDERATION**Disposal**

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste:

Not Applicable

Listed Waste:

Not Applicable

14. TRANSPORT INFORMATION

DOT Classification:

Not Applicable; No Label or Placard Required

B/L Freight Classification

Chemicals, N.O.I.

International Transportation

Not Applicable

15. REGULATORY INFORMATION

SARA Title III Classification

Section 311/312: Acute Health Hazard

Section 313
chemical(s): Not Applicable

Proposition 65

Not Applicable

CERCLA Reportable Quantity (RQ)

None

RCRA Classification

Not Applicable

TSCA Status

On TSCA Inventory

10. OTHER INFORMATION**NFPA Hazard Ratings**

Health:	1	0	Least
Flammability:	0	1	Slight
Reactivity:	0	2	Moderate
		3	High
		4	Severe

Questions concerning the safe handling of the product should be referred to:

Industrial Health

1-800-334-9481

Issued 9/29/88
Date:

Revised 4/1/97
Date:

Supersedes: 10/4/96

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVP#: Not Available

MSDS's are valid for 7 days after printdate. Other printed documents become invalid 24 hrs after printdate unless otherwise specified in procedure #CAT00001.

RECAL IITM

SOIL AMENDMENT AGENT

Syngenta Crop Protection, Inc.
P.O. Box 11
St. Gabriel, LA 70776



Cooperative Extension Services
Division of Plant Science
Louisiana Agricultural Experiment Station
Department of Agronomy
126 Madison B. Sturgis Hall - LSU
(225)578-1261
Website: www.agctr.lsu.edu

Soil Test Results

Hamilton, Charles
11003 Dewberry
St. Francisville, LA 70775
West Feliciana

Lab Number: 1102009024

Sample ID: #8

Soil Texture: silt loam

Area: Alluvial

Irrigated: No

SOIL TEST RESULTS AND INTERPRETATIONS

	Results	Interpretation
Calcium, ppm	1,927.78	Medium
Magnesium, ppm	381.39	Very High
pH	5.46	Low
pH @ 1 Ton/Ac Lime	6.31	Optimum
Phosphorus, ppm	202.36	Very High
Potassium, ppm	173.47	High
Sodium, ppm	46.86	Optimum

814

Nutrients Needed: lb/Acre

	Form	Nitrogen	Phosphate	Potash
bermudagrass (pasture)	est. hyb. ber.	80-120	0	60
bermudagrass (pasture)	establish comm.	80-120	0	60
bermudagrass (pasture)	grazing	100-200	0	0
bermudagrass (pasture)	hay comm.	200-300	0	60
bermudagrass (pasture)	hay hyb. ber.	300-400	0	60

CONTACT YOUR COUNTY AGENT (TELEPHONE 225/635-3614) IF YOU HAVE ANY QUESTIONS ABOUT THIS REPORT. THE AGENT ALSO RECEIVES A COPY OF THIS REPORT AND MAY CONTACT YOU TO DISCUSS IT.



McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Resample For CEC

Soil Testing and Plant Analysis Laboratory
Department of Agronomy
Louisiana State University
Baton Rouge, LA 70803
(225)578-1261
Website: www.agctr.lsu.edu/stpal

Date Received: 12/15/2004

Lab Number: 1104160003

Sample ID: Hamilton #8

Soil Texture: fine sandy loam

Area: Alluvial

Irrigated: No

Test Results

it	Value	Bermuda (pa
	5.78	Optimum
phorus, ppm	11.79	Very Low
sium, ppm	58.86	Very Low
um, ppm	1,128.57	Medium
nesium, ppm	167.86	Very High
um, ppm	22.48	Optimum

RECOMMENDATION

	Form	Units: lb/Acre	Nitrogen	Phosphate	Potash
nuda (pasture)	est. hyb. ber.		80-120	140	140
nuda (pasture)	establish comm.		80-120	120	120
nuda (pasture)	grazing		100-200	80	100
nuda (pasture)	hay comm.		200-300	120	240
nuda (pasture)	hay hyb. ber.		300-400	140	300

additional crop information please see (<http://www.agctr.lsu.edu/stpal/recsheets/P-210.rtf>)

If there are any questions about this report, please contact your local extension service office at (Telephone 225/687-5155). The extension office also receive a copy of this report.



Department of Agronomy
Soil Testing and Plant Analysis Lab
126 Madison B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261
Website: <http://www.agctr.lsu.edu/stpal>

Soil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004

Lab Number: 1504160003

Sample ID: Hamilton #8

Texture: N/A

Area: Alluvial

Irrigated: No

Test	Results	Interpretation	Low	Optimum	High
pH	1.16		< 0.20	0.20 - 0.25	> 0.25
N, ppm	125.17		< 2.50	2.50 - 4.50	> 4.50
P, ppm	19.66		< 2.00	2.00 - 4.00	> 4.00
K, ppm	1.50		< 0.50	0.50 - 1.25	> 1.25

If you have any questions about this report, please contact your local extension service office at (225) 225-687-5155. The extension office also receives a copy of this report.



Department of Agronomy
Soil Testing and Plant Analysis Lab
126 Madison B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261
Website: <http://www.agctr.lsu.edu/stpal>

oil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776
Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004
Lab Number: 1804160003
Sample ID: Hamilton #8
Texture: N/A
Area: Alluvial
Irrigated: No

Test	Results	Interpretation	Very Low	Low	Optimum	High	Very High
mt							
ppm	184.58	Very Low	< 301.00	301.00 - 601.00	601.00 - 1,001.00	1,001.00 - 1,500.00	> 1,500.00

are any questions about this report, please contact your local extension service office at Telephone 225/687-5155). The extension office also receives a copy of this report.



Division of Plant Science
Louisiana Agricultural Experiment Station
Department of Agronomy
126 Madison B. Sturgis Hall - LSU
(225)578-1261
Website: www.agctr.lsu.edu

Soil Test Results

Hamilton, Charles
11003 Dewberry
St. Francisville, LA 70775
West Feliciana

Lab Number: 1102009025
Sample ID: #9
Soil Texture: silt loam
Area: Alluvial
Irrigated: No

SOIL TEST RESULTS AND INTERPRETATIONS

	Results	Interpretation
Calcium, ppm	1,060.23	Low
Magnesium, ppm	283.18	Very High
pH	5.41	Low
pH @ 1 Ton/Ac Lime	6.03	Optimum
Phosphorus, ppm	49.28	Very Low
Potassium, ppm	119.66	Low
Sodium, ppm	36.92	Optimum

1187

Nutrients Needed: lb/Acre

	Form	Nitrogen	Phosphate	Potash
bermudagrass (pasture)	est. hyb. ber.	80-120	140	120
bermudagrass (pasture)	establish comm.	80-120	120	100
bermudagrass (pasture)	grazing	100-200	80	60
bermudagrass (pasture)	hay comm.	200-300	120	180
bermudagrass (pasture)	hay hyb. ber.	300-400	140	200

CONTACT YOUR COUNTY AGENT (TELEPHONE 225/635-3614) IF YOU HAVE ANY QUESTIONS ABOUT THIS REPORT. THE AGENT ALSO RECEIVES A COPY OF THIS REPORT AND MAY CONTACT YOU TO DISCUSS IT.



RESAMPLE FOR CEL

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Date Received: 12/15/2004
Lab Number: 1104160004
Sample ID: Hamilton #9
Soil Texture: silt loam
Area: Alluvial
Irrigated: No

Test Results

	Value	Bermuda (pa)
	6.02	Optimum
phorus, ppm	12.32	Very Low
ssium, ppm	61.73	Very Low
um, ppm	1,077.46	Low
nesium, ppm	103.47	Low
um, ppm	20.54	Optimum

RECOMMENDATION

	Form	Units: lb/Acre	Nitrogen	Phosphate	Potash
nuda (pasture)	est. hyb. ber.		80-120	140	140
nuda (pasture)	establish comm.		80-120	120	120
nuda (pasture)	grazing		100-200	80	100
nuda (pasture)	hay comm.		200-300	120	240
nuda (pasture)	hay hyb. ber.		300-400	140	300

additional crop information please see (<http://www.agctr.lsu.edu/stpal/recsheets/P-210.rtf>)



Department of Agronomy
Soil Testing and Plant Analysis Lab
126 Madison B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261
Website: <http://www.agctr.lsu.edu/stpal>

Soil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004
Lab Number: 1504160004
Sample ID: Hamilton #9
Texture: N/A
Area: Alluvial
Irrigated: No

Test	Results	Interpretation	Low	Optimum	High
pH	1.25		< 0.20	0.20 - 0.25	> 0.25
N, ppm	96.30		< 2.50	2.50 - 4.50	> 4.50
P, ppm	32.55		< 2.00	2.00 - 4.00	> 4.00
K, ppm	1.26		< 0.50	0.50 - 1.25	> 1.25

If you have any questions about this report, please contact your local extension service office at (225)687-5155. The extension office also receives a copy of this report.



Department of Agronomy
Soil Testing and Plant Analysis Lab
126 Madison B. Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-1261
Website: <http://www.agctr.lsu.edu/stpal>

oil Test Results

McDonald, Jerry
3905 Hwy 75
St. Gabriel, LA 70776

Iberville
jerry.mcdonald@syngenta.com

Date Received: 12/15/2004

Lab Number: 1804160004

Sample ID: Hamilton #9

Texture: N/A

Area: Alluvial

Irrigated: No

est	Results	Interpretation	Very Low	Low	Optimum	High	Very High
it							
ppm	150.78	Very Low	< 301.00	301.00 - 601.00	601.00 - 1,001.00	1,001.00 - 1,500.00	> 1,500.00

If you have any questions about this report, please contact your local extension service office at (225) 225/687-5155. The extension office also receives a copy of this report.



Department of Agronomy and Environmental Management
104 Sturgis Hall - LSU
Baton Rouge, LA 70803
(225)578-2110
Fax: (225)578-1403
Web site: www.lsuagcenter.com

Soil Characterization Lab

Research and Extension Programs
Agriculture
Economic/Community Development
Environment/Natural Resources
Families/Nutrition/Health
4-H Youth Programs

Invoice # 041106
December 21, 2004

Jerry McDonald
3905 Hwy 75
St. Gabriel, LA 70776

Sample ID	Field Identification	Crop	CEC* (meq/100 g soil)
1104160001	Hamilton #5	Burmuda (pasture)	8.64
1104160002	Hamilton #6	Burmuda (pasture)	7.73
1104160003	Hamilton #8	Burmuda (pasture)	8.27
1104160004	Hamilton #9	Burmuda (pasture)	8.94
1104160005	Burton #15	Burmuda (pasture)	7.98
1104160006	Burton #11	Burmuda (pasture)	5.77
1104160007	Burton #10	Burmuda (pasture)	5.76
1104160008	Burton #3	Burmuda (pasture)	10.15
1104160009	Burton #1	Burmuda (pasture)	9.36

8.61 Site 119

* Ammonium acetate (pH 7.0) extraction (Soil Survey 1996).

SOIL TEST INFORMATION SHEET NO. P-210

Prepared by Extension Agronomist Edward Twidwell

Perennial Summer Pasture Grasses—

Bahia, Dallisgrass, Common and Hybrid Bermudas

1. These grasses grow over a wide range of soil pH values, but it is recommended that agricultural limestone be applied when the pH is below 5.0. If the sod is to be overseeded with ryegrass or clovers, the soil pH should be maintained at a pH of 5.8 or above. Where magnesium is medium or lower, use dolomitic limestone. When lime is not needed and magnesium is medium or lower, apply sulfate of potash-magnesia (Sul-Po-Mag or K Mag).

Establishing Perennial Summer Grasses

2. Recommended rates of phosphorus and potassium and 20-40 pounds of nitrogen per acre should be applied and incorporated into the soil before seeding or sprigging.
3. After seedlings emerge or sprigs start to grow, apply 40-60 pounds of nitrogen per acre. An additional 20-40 pounds of nitrogen may be needed in August or early September.

Maintaining Perennial Summer Grasses for Grazing

4. All the recommended rates of phosphorus and potassium and 60-80 pounds of nitrogen per acre should be applied in the spring soon after growth starts.
5. An additional 60-80 pounds of nitrogen will be needed in June. For fall grazing, 30-40 pounds of nitrogen may be needed in August or early September.

Bahia or Hybrid Bermudagrass for Hay

6. One-third to one-half of the recommended phosphorus and potassium and 80-100 pounds of nitrogen should be applied as soon as growth starts in the spring.
7. Apply 80-100 pounds of nitrogen after each cutting of hay (except the last) and one-third of the recommended phosphorus and potassium after the 1st and 2nd cutting or one-half after the 2nd cutting.
8. On uplands and soils that test low in sulfur, applying 10-20 pounds of sulfur per harvest as a sulfate may increase yields. It can be applied by using ammonium sulfate as part of the nitrogen application program or with a blend containing sulfur in the sulfate form.
9. Contact your county agent for additional information and help in your fertilization program. The agent also receives a copy of this report for the parish office files.

BEST COPY OF THE NEXT 02 PAGES

82

Lot 2

DeLeed Daniel W.

Scott
Creek

R 3 V

R 2 V

R2

Willis, John H.

Willis, John H. (3/80th Int.)

Willis, Thomas H. (3/80th Int.)

Z

Eulaerts, Victoria Mary

R2W

T 1 S

T 2 S

4

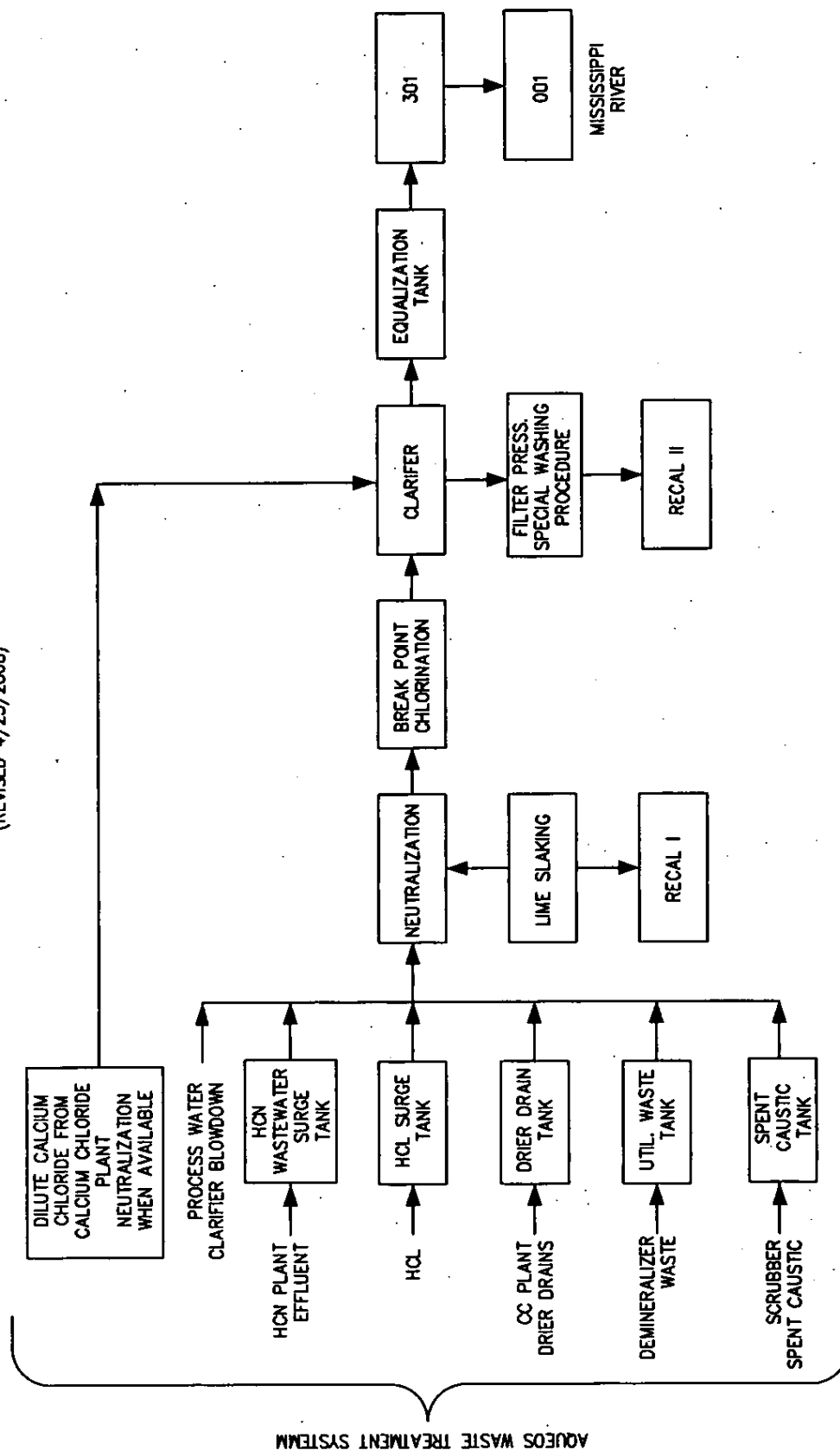
rs, Victoria Mary

argosel, S

Appendix D

- **Syngenta RECAL II Process Flow Diagram**
- **Syngenta's August 13, 2007 Correspondence Requesting Temporary Authorization**

AWT PROCESS (REVISED 4/23/2008)



(REVISED)

4/23/2008

syngenta
CROP PROTECTION INC.
St. Gabriel Plant

AQUEOUS WASTE TREATMENT SYSTEM

AN002 02-12-07

 syngenta

August 13, 2007

Certified Mail: 7005 0390 0003 3356 5256

Chuck Carr Brown, Ph.D
Assistant Secretary
Louisiana Department of Environmental Quality
Office of Environmental Services-Waste Permits
P.O. Box 4313
Baton Rouge, Louisiana 70821-4313

Re: Syngenta Crop Protection, Inc.-St. Gabriel Plant (Syngenta) Request for Authorization to Distribute RECAL II Beneficial Reuse Material to Local Farmers as a Substitute Liming Agent

GD-047-0224/P0311 AI #2367

Dear Dr. Brown:

This is a follow up of our meeting of June 20, 2007 at your offices concerning the repermitting and authorization to distribute to local farmers the Syngenta Beneficial Use RECAL II (Recyclable Calcium Carbonate) as a substitute agricultural soil liming agent. See Attachment 1 for a copy of meeting sign-in sheet. The Syngenta Beneficial Use of RECAL II permit (GD-047-0224/P-0311) expired on November 25, 2006 after LDEQ authorizations and permits allowed distribution of the RECAL II to farmers since 1990. Syngenta is now preparing a permit renewal application and will submit the application soon. This letter is a request that LDEQ authorize continued distribution of this material to farmers under LAC 33:VII.117 (Experimental Operations for New Technologies).

§ 117. Experimental Operations for new Technologies

A. This section allows applicants to submit requests allowing experimental operations for new technology prior to requesting a permit modification.

Response

Syngenta submits this request to LDEQ to allow distribution of the RECAL II (Recyclable Calcium Carbonate) under the same permit limitations as GD-047-0224/P-0311 until LDEQ issues the permit renewal for the material. Syngenta hoped that the newly constructed Calcium Chloride Plant would consume all of the Hydrochloric Acid by product that it formerly neutralized in its wastewater treatment system eliminating the production of the RECAL II. Unfortunately, the Calcium Chloride Plant has not performed to design rates and excess hydrochloric acid required wastewater treatment elementary neutralization that produces calcium carbonate precipitate. Accordingly, Syngenta is preparing a permit renewal application. During the permit renewal process Syngenta will be producing RECAL II with the same process permitted under the original Beneficial Use permit, except that there have been some minor process

changes, that Syngenta believes qualify for experimental operations, and allow LDEQ to authorize distribution under this section.

- B. Permission may be granted to facilitate experimental operations intended to develop new methods or technology providing strict conformity with these regulations is demonstrated in the request.*

Response

Syngenta has demonstrated strict conformity with the LDEQ regulations regarding its Beneficial Use permit for RECAL II distribution since 1990 without any incidents threatening the human health or the environment. During this period Syngenta distributed over 72,000 tons of RECAL II saving local farmers at over 100 sites over \$2,000,000 with no incidents. Syngenta intends to continue to follow the requirements of its original permit if LDEQ authorizes continued distribution while awaiting permit renewal. The minor process changes made will not change the effectiveness or safety of the product use.

- C. Experimental operations shall be considered only where significant health, safety, environmental hazards or nuisances will not be created, and when a detailed proposal is submitted and accepted that sets forth the objectives, procedures, controls, monitoring, reporting, time frame, and other data regarding the experimental operations.*

Response

Attachment 2 includes the process flow diagram showing the production process provided to LDEQ in the August 1996 permit application and the updated process flow diagram with the minor changes.

Syngenta will continue to follow all objectives, procedures, controls, monitoring, and reporting delineated in the original permit application during the temporary authorization period while awaiting the permit renewal. The time frame for Syngenta use of the experimental authorization to distribute will be only be from the first week of September 2007 through several weeks required by LDEQ for the permit renewal process, until LDEQ issues the RECAL II Beneficial Use permit renewal. Since no adverse incidents have occurred involving the use of RECAL II by local farmers during the 16-year period of past distribution, accordingly, Syngenta believes that no significant health, safety, or environmental hazards during the time awaiting permit renewal. Additionally, the experimental change involves only the occasional routing of excess neutralized Hydrochloric Acid (as excess unsellable Calcium Chloride solution) from the new Calcium Chloride Plant to the Syngenta clarifier that settles the unfiltered Calcium Carbonate Solid.

- D. Restriction. Initial experimental operations shall be limited to a maximum of two years. However, the department may renew the request for additional time periods upon a showing by the person that the need for a continuance is valid.*

Response

Syngenta intends to submit a permit renewal application in September 2007 and will require temporary experimental authorization only for the time (expected to be less than 2 months) required for LDEQ to review and approve the permit renewal.

Chuck Carr Brown, Ph.D
August 13, 2007
Page 3 of 3

If you have any questions please contact me at 225-642-1257.

Sincerely,

Richard B. Boudreau

Richard B. Boudreau
Sr. Staff Environmental Engineer

cc: Ms. Sonya Eastern, LDEQ Permits Division
Mr. Hoa Van Nguyen- LDEQ Permits Division

Attachment 1

Meeting Sign In Sheet –June 20, 2007

Date:

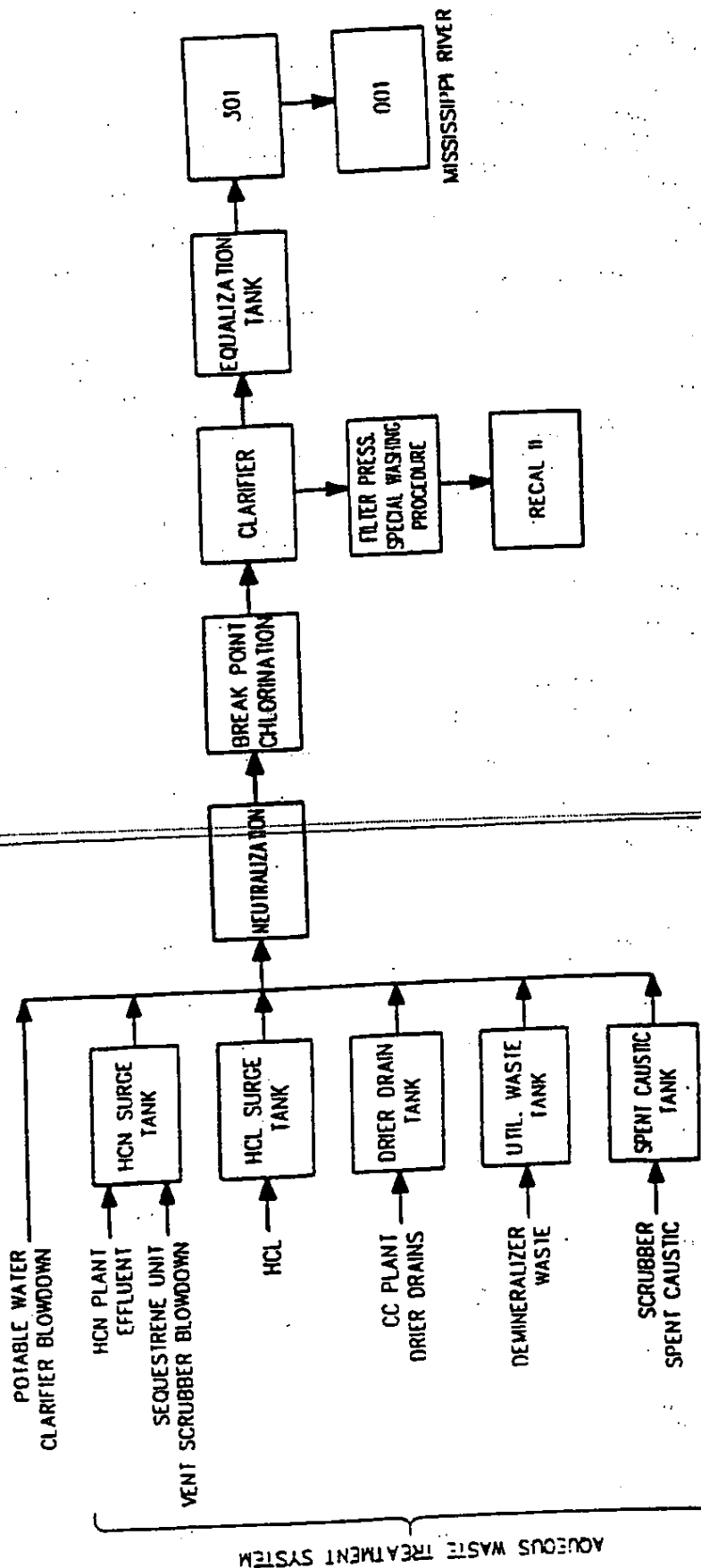
6/20/07

Name	Phone#	Fax#	Organization
Chell Carr Brown	225 219 3180		LDER
Larry Lettune	225-925-6944	225-925-3760	LDER Larry.L@louisiana.gov
Butch Stegall	225-922-1269	225-922-2577	LDER butch-s@louisiana.gov
Chuck Hendrich	225-219-3452	225-219-3474	LDER - Permits - Waste Engrg
Bob Beine	225-342-5812	225-342-0027	LDER bob.beine@louisiana.gov
Robert Phelan	985-766-1000	985-875-0470	Phelan.rim@earthlink.net
Richard Boudreau	225-642-1257	225-282-1156	Richard.boudreau@syngenta.com
Amy Encinos	225-219-0029		Amy.encinos@louisiana.gov LDER
Shannon Pusateri	225-219-3453		shannon.pusateri@louisiana.gov LDER
SONYA EASTERN	225 219-3551		Sonya.Eastern@louisiana.gov
Hue Van Nguyen	225-219-3047	225-219-3158	LDER
MURPHY McMillan	225-642-1453		Syngenta
VINCE SAGONGSE	225-219-3963		VINCE.SAGONGSE@louisiana.gov LDER

Attachment 2

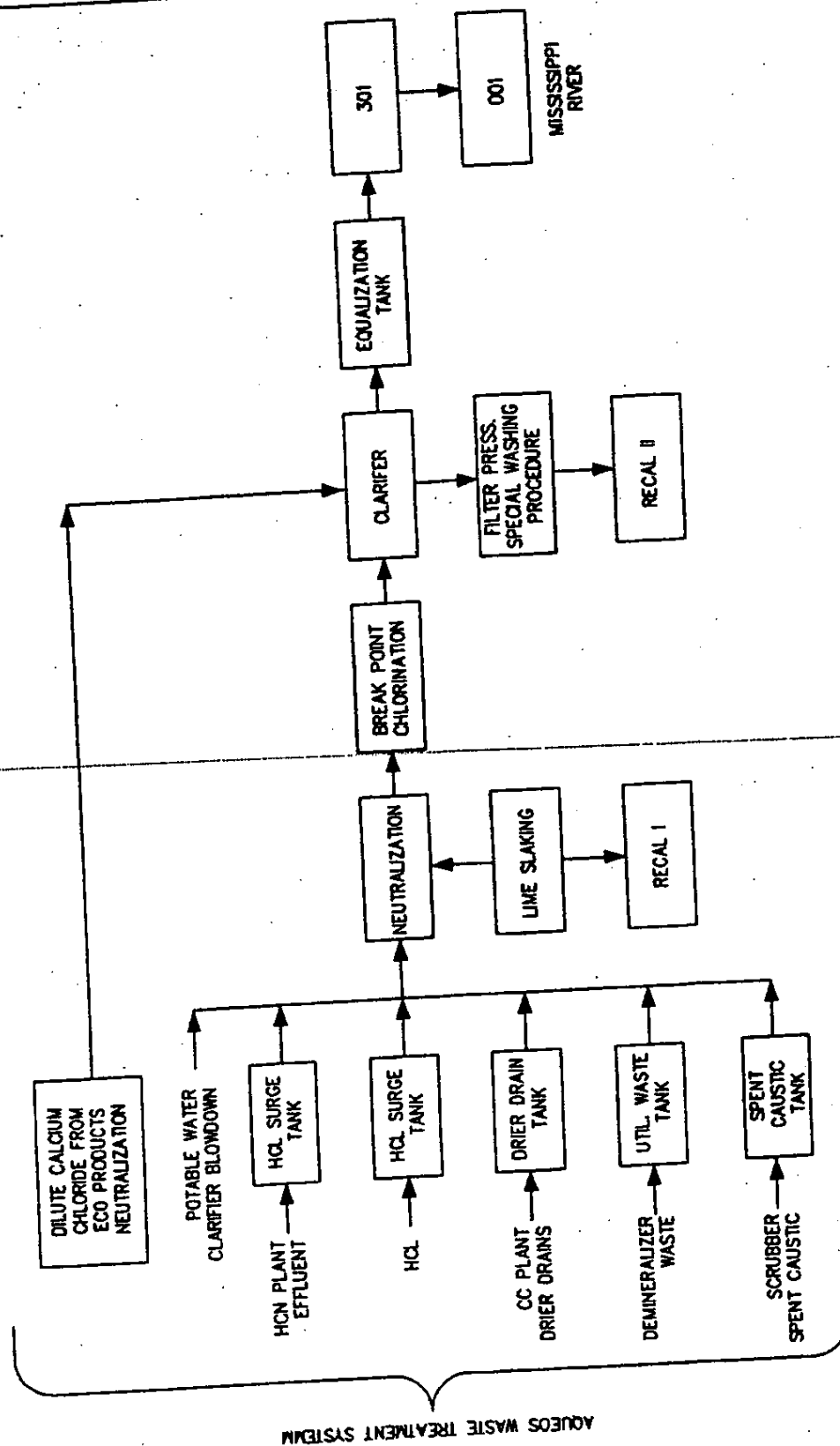
Recal II Process Flow Diagrams

AWT PROQESS (ORIGINAL)



CIBA-GEIGY Corporation
St. Gabriel Plant

AWT PROCESS (REVISED)



syngenta
CROP PROTECTION INC.
St. Gabriel Plant

AWT PROCESS (REVISED)

8-14-07

Appendix E

**LDEQ's September 24, 2007 Authorization Correspondence,
and Subsequent October 01, 2007 Clarification Correspondence**



DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO
GOVERNOR

SEP 24 2007

MIKE D. McDANIEL, Ph.D.
SECRETARY

RECEIVED

SEP 25 2007

R. B. BOUDREAU

CERTIFIED MAIL 7003 2260 00056 9323 2314
RETURN RECEIPT REQUESTED

Mr. Richard Boudreau
Senior Staff Environmental Engineer
Syngenta Crop Protection Inc.
Post Office Box 11
St. Gabriel, Louisiana 70776

RE: Request for Experimental Operations for New Technologies
Syngenta - St. Gabriel Plant
AI#2367/GD-047-0224/P-0311/PER20070016
Iberville Parish

Dear Mr. Boudreau:

We are in receipt of your submittal dated August 12, 2007, requesting authorization in accordance with LAC 33:VII.117 to allow Experimental Operations for New Technologies.

As described in your request, excess neutralized hydrochloric acid (unsellable calcium chloride solution) will be occasionally routed from the Calcium Chloride Plant to the facility's clarifier where the unfiltered calcium carbonate solids will be allowed to settle. This product was formerly neutralized in the facility's wastewater treatment system. As described in your request, this experimental change will involve on occasion, rerouting of process flow. This operation would conform to solid waste regulations and is not expected to create a significant health, safety, environmental hazard, or nuisance. Considering these facts, your request under LAC 33:III.VII.117 for the allowance of the experimental development of the new operational method is hereby approved for a period of six months from the date of receipt.

This approval does not imply approval of your pending permit renewal application. Further, you are proceeding with the new technology activities at your own risk. In addition, please note that this approval applies only to the new routing of the calcium carbonate product to the clarifier.

ENVIRONMENTAL SERVICES

: PO BOX 4313, BATON ROUGE, LA 70821-4313
P:225-219-3181 F:225-219-3309
WWW.DEQ.LOUISIANA.GOV

Appendix E

**LDEQ's September 24, 2007 Authorization Correspondence,
and Subsequent October 01, 2007 Clarification Correspondence**



September 25, 2007

Certified Mail: 7006 3450 0002 3410 2605

Bijan Sharafkhani
Louisiana Department of Environmental Quality
Office of Environmental Services-Waste Permits
P.O. Box 4313
Baton Rouge, Louisiana 70821-4313

Re: Syngenta Crop Protection, Inc.-St. Gabriel Plant (Syngenta) Request for Authorization
to Distribute RECAL II Beneficial Reuse Material to Local Farmers as a Substitute
Liming Agent

GD-047-0224/P0311 AI #2367

Dear Mr. Sharafkhani:

Syngenta received the LDEQ your letter dated September 24, 2007 that responded to Syngenta's request for authorization to distribute RECAL II under the same permit conditions as the expired permit cited above (GD-047-0224/P-0311) and under the experimental provisions of LAC 33:VII.117. This letter is to request clarification of the approval issued in the LDEQ letter dated September 24, 2007. Copies of the LDEQ September 24, 2007 letter and the Syngenta letter dated August 13, 2007 are attached.

Syngenta has distributed the RECAL II with no incidents for seventeen years since 1989 either under LDEQ authorizations or more recently under the Beneficial Reuse permit issued by LDEQ in 1996.

It is Syngenta's understanding of the September 24, 2007 LDEQ letter that LDEQ authorizes Syngenta to distribute the RECAL II temporarily for six months under the same permit conditions as GD-047-0224/P-0311 or until the RECAL II permit renewal is issued. Syngenta will submit a permit renewal application in a few weeks. It is also Syngenta's understanding of the September 24, 2007 approval letter that LDEQ authorizes the occasional routing of the Calcium Chloride Plant Calcium Chloride Solution to the AWT clarifiers, when and if the Calcium Chloride Plant is in production, under the provisions of LAC 33: VII.117.

Please provide a letter of concurrence with Syngenta's understanding of the September 25, 2007 approval.

Thank you for your assistance. If you have any questions please contact me at 225-642-1257.

Sincerely,

A handwritten signature in dark ink, appearing to read "Richard B. Boudreau".
Richard B. Boudreau
Sr. Staff Environmental Engineer

cc: Ms. Sonya Eastern, LDEQ Permits Division
Mr. Hoa Van Nguyen- LDEQ Permits Division



DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO

GOVERNOR

October 1, 2007

MIKE D. McDANIEL, Ph.D.

SECRETARY

RECEIVED

OCT 04 2007

R. B. BOUDREAU

Mr. Richard Boudreau
Senior Staff Environmental Engineer
Syngenta Crop Protection Inc.
Post Office Box 11
St. Gabriel, Louisiana 70776

RE: Clarification of RECALL II Distribution
Syngenta - St. Gabriel Plant
AI#2367 / GD-047-0224 / P-0311 / PER20070016
Iberville Parish

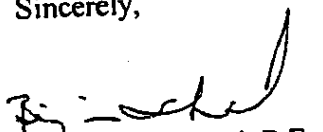
Dear Mr. Boudreau:

We are in receipt of your submittal dated September 25, 2007, requesting clarification of our approved letter dated September 24, 2007, regarding the distribution of Syngenta's RECALL II material to local farmers as a substitute liming agent.

We understand that your letter dated August 13, 2007, is a request to allow distribution of the Recyclable Calcium Carbonate (RECALL II) under the same permit limitations and conditions as provided in the standard permit P0311, until the Department issues the permit renewal for the material. Therefore, we concur with your understanding that our approval dated September 24, 2007, is to authorize Syngenta to temporarily distribute RECALL II for six (6) months or until the re-issuance of the standard permit, whichever comes first.

Please reference your Agency Interest Number 2367 and Facility Identification Number GD-047-0224 on all correspondence regarding the distribution of RECALL II. If you have any questions concerning this matter, please contact Mr. Hoa Van Nguyen with the Waste Permits Division at 225-219-3047.

Sincerely,


Bijan Sharafkhani, P.E.
Administrator
Waste Permits Division

hvn

c: CRO - Office of Environmental Compliance

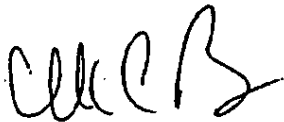
ENVIRONMENTAL SERVICES

: PO BOX 4313, BATON ROUGE, LA 70821-4313
P: 225-219-3181 F: 225-219-3309
WWW.DEQ.LOUISIANA.GOV

Syngenta - St. Gabriel Plant
Page 2

Please continue to reference your Agency Interest (2367) and Facility Identification Numbers (GD-047-0224) on all correspondence concerning this matter. If you have any questions concerning this matter, please contact Ms. Sonya Eastern at (225) 219-3551 or Mr. Hoa Van Nguyen at 219-3047 of the Waste Permits Division.

Sincerely,



Chuck Carr Brown, Ph.D.
Assistant Secretary

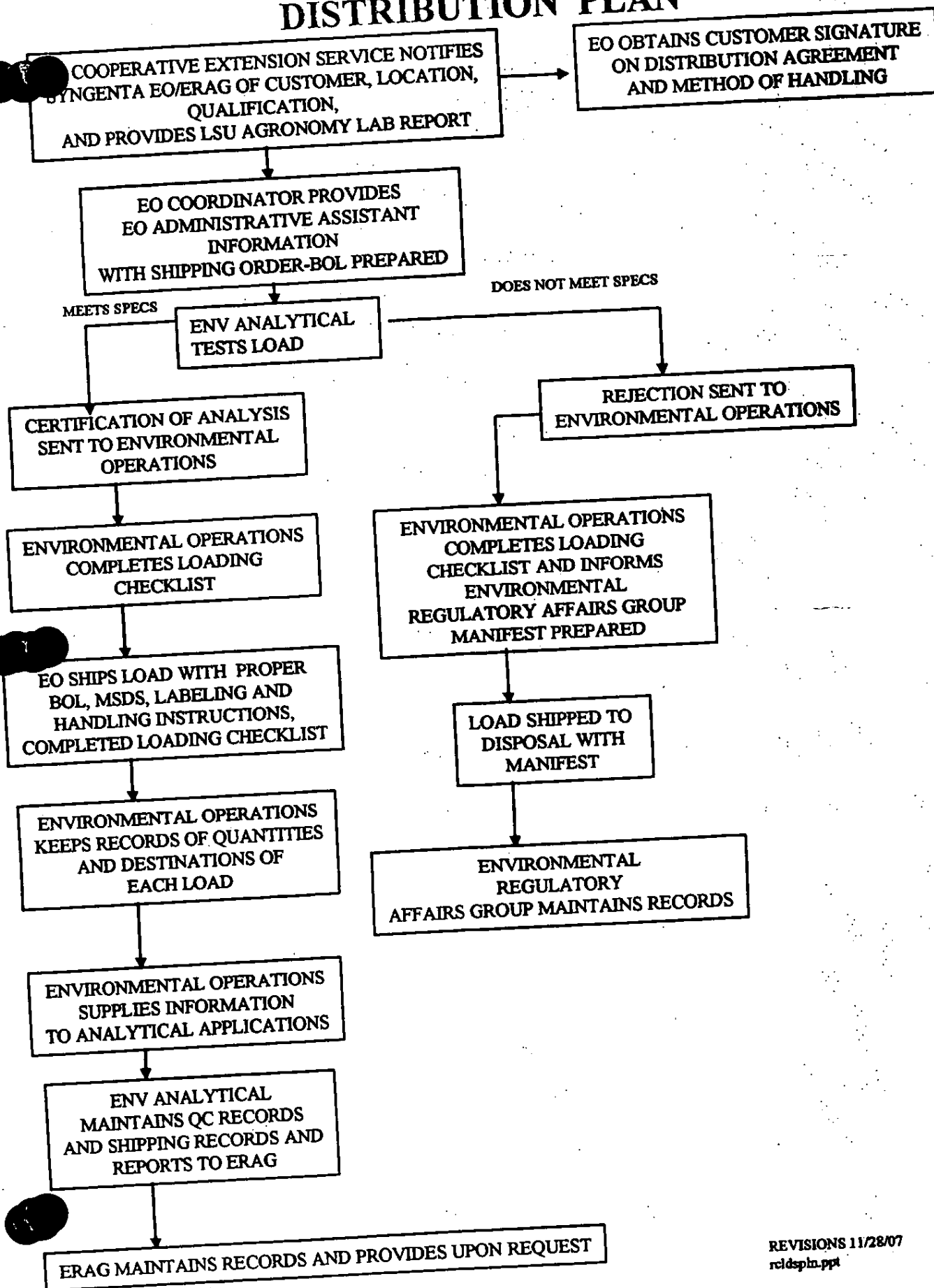
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c: CRO - Office of Environmental Compliance

BEST COPY OF THE NEXT 89 PAGES

Appendix F

Syngenta's RECAL II Operational Distribution Plan, Specifications, Typical Characteristics, Loading Rate Calculation Form, Distribution Agreement Form, and Method of Handling Form

RECAL II OPERATIONAL DISTRIBUTION PLAN



RECAL II Shipment Specifications

*CALCIUM CARBONATE (DRY BASIS, WT %)	≥ 65
*CALCIUM CHLORIDE (DRY BASIS, WT %)	≤ 3.0
*SOLIDS CONTENT (AS IS, WT %)	≥ 38.0

RECAL II TYPICAL CHEMICAL CHARACTERISTICS

*CALCIUM CARBONATE (DRY BASIS, WT %)	≥65
*CALCIUM CHLORIDE (DRY BASIS, WT %)	≤3.0
*SOLIDS CONTENT (AS IS, WT %)	≥38.0
**CALCIUM SULFATE (DRY BASIS, WT %)	<25.0
**CALCIUM HYDROGEN PHOSPHATE (DRY BASIS, WT %)	<10.0
**CALCIUM HYDROXIDE (DRY BASIS, WT%)	<5
**IRON HYDROXIDE (DRY BASIS, WT %)	<2.5
**SODIUM CHLORIDE (DRY BASIS, WT %)	<0.3
*KJELDAHL NITROGEN (AS IS, WT %)	<2500
**TOC (AS IS, PPM)	<3900
**pH (50/50 IN WATER)	9.1-12.7
**CYANIDE (AS IS, PPM)	<3.0
**TOTAL TRIAZINES (AS IS, PPM)	<10.0
**CYANATE (AS IS, PPM)	<10.0
**CYANOGEN CHLORIDE (AS IS, PPM)	<1.0
**FREE CHLORINE (AS IS, PPM)	<6.0
**SODIUM THIOSULFATE (AS IS, PPM)	≤150
**TCLP (FULL) (AS IS, MG/L)	PASSES

*Test frequency will be each load with values shown as release criteria.

**Test frequency will be on request because considerable data shows that analysis of this constituent is unnecessary.

Updated 1/24/08

RECAL II TYPICAL CHEMICAL CHARACTERISTICS (CONTINUED)

¹AVERAGE AND MAX CONCENTRATION OF SW REGULATED METALS AND CIBA CEILING VALUES OF OTHER METALS IN RECAL II TO EACH SITE (SINCE APRIL, 1991)

	<u>AVERAGE</u>	<u>MAX</u>
**LEAD (AS IS BASIS, PPM)	4.5 ³	7.2 ³
**COPPER (AS IS BASIS, PPM)	8.2	<62.0
**CADMIUM (AS IS BASIS, PPM)	1.2	<4.8
**NICKEL (AS IS BASIS, PPM)	18.6	<45.0
**ZINC (AS IS BASIS, PPM)	100.1	<252.0
		<u>CIBA² CEILING</u>
		<u>VALUE</u>
**ARSENIC (AS IS BASIS, PPM)	--	<31.0
**BARIUM (AS IS BASIS, PPM)	--	<290.0
**CHROMIUM (TOTAL, AS IS BASIS, PPM)	--	<90.0
**CHROMIUM (HEXA VALENT, AS IS BASIS, PPM)	--	<1.5
**MERCURY (AS IS BASIS, PPM)	--	0.25
**SELENIUM (AS IS BASIS, PPM)	--	0.5
**SILVER (AS IS BASIS, PPM)	--	2.5

¹About 100 loads analyzed since 1989 for Pb, Cu, Cd, Ni, Zn.

**Test frequency will be on request because of considerable amount of data already obtained.

²These ceiling values were initially established in 1/89 as target values after analyzing ten lots. Testing was continued on every 15th load until 4/90 resulting in 11 more lots tested for these metals. The values shown in this table are updated ceiling values based on the additional data. These values still remain as target values.

³Re-established on 20 loads from 2003-2004.

Updated 1/24/08

RECAL II Loading Rate Calculation

Farmer: _____

Site: _____

Directions: _____

pH: _____

Loading Rate: _____

Number of Acres: _____

Pounds to ship: _____

Trucks to ship: _____

Signature _____

Date: _____

syngenta

DISTRIBUTION AGREEMENT
RECAL II

1. Seller agrees to sell and transfer to Buyer Recal II, (the "Product"), for a period from _____, 20____ through _____, 20____. Either party shall have the right to terminate this Agreement upon 30 days written notice.
2. Buyer agrees that it will use the Product only as a soil amendment agent in Buyer's agricultural business and Buyer will not resell the product.
3. **SELLER MAKES NO EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.**
In no case shall Seller be liable for consequential, special or indirect damages resulting from the use or handling of the Product.
4. Buyer agrees to comply with all federal, state and local laws and regulations in the use and handling of the product, including disposal of any containers or excess Product.
5. Title shall pass from Seller to Buyer upon delivery of the Product to Buyer.
6. This Agreement may not be assigned by either party except with the prior written consent of the other party.
7. No modification of the Agreement shall be effective unless in writing and signed by the parties hereto.
8. Any questions under this Agreement shall be interpreted in accordance with the laws of the State of Louisiana as if this Agreement were made and to be performed in that state.
9. Before delivery, Buyer must read and sign a Method of Handling Sheet. Buyer agrees to handle and use the Product in accordance with each Method of Handling Sheet.

Syngenta Coordinator

Buyer

Printed Name

Printed Name

Signature and Date

Signature and Date



METHOD OF HANDLING
RECAL II

Distribution Agreement must be signed before delivery.

HANDLING

1. Wear the following when handling Recal II:
 - Goggles
 - Rubber gloves
 - Rubber boots
 - Trousers and long sleeve shirts
2. Wash with large amounts of water on any body part exposed to Recal II.
3. Read Material Safety Data Sheet **before** application.
4. Recal II should be distributed as soon as possible. Cover undistributed Recal II with plastic to maximize exposure to rain and reduce Recal II runoff contamination.
5. Remove any plastic, including delivery trailer liner, before redistributing Recal II.

DISTRIBUTION

6. Do not exceed four tons per acre.
7. The Recal II spreader will be made available by Syngenta.
8. Farmer will be responsible for spreader maintenance.
9. Transportation of the spreader will be the responsibility of the farmer who used it last.
10. Spreader requires use of a front end loader.

MISCELLANEOUS

11. The following information is to be reported to the Extension Services regarding the treated area:
 - Number of acres.
 - Crops to be grown.
12. Soil samples will be taken before distribution under the direction of the Cooperative Extension Services.
13. The following analysis are required:
 - pH
 - Cation Exchange Capacity (CEC).
 - Bill test costs to Syngenta Crop Protection, Inc., P.O. Box 11, St. Gabriel, LA 70776, Attention: Jude Brand.

Syngenta Coordinator

Buyer

Printed Name

Printed Name

Signature and Date

Signature and Date